

SD Times

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PROBLEMS ARISE DURING UML 2.0 FINALIZATION

Lack of clarity, inability to implement spec cited as obstacles to early adoption

BY DAVID RUBINSTEIN

The co-chairman of the task force working on the finalization of UML 2.0 has acknowledged that two important problems have emerged during this phase of review, but said they are being fixed and the specification is expected to be released as an Object Management Group Inc. available technology in April 2004.

Bran Selic, who is IBM Corp.'s liaison to OMG from the Rational software group, said vendors and academicians trying to implement the UML 2.0 specification, which was approved by

the OMG Architecture Board, are raising issues.

In fact, several companies that recently spoke with SD Times indicated the specification was not yet ready to be incorporated into their products. "You can only do [the finalization] once people start implementing it," Selic said. "But the core specification is stable enough that tools vendors can start to base their products on it."

One of the problems, Selic said, is that new mechanisms used to define the abstract semantics of the language are

► continued on page 16

Geronimo! Apache Takes J2EE Plunge

Nonprofit can gain Sun certification, offers 'friendly' license for app server

BY YVONNE L. LEE

The Apache Software Foundation has launched a project to build a J2EE-compliant open-source application server, but it may have dived into a long-running dispute between JBoss Group LLC and Sun Microsystems Inc.

The Apache project, dubbed "Project Geronimo" after a famous warrior from that tribe of Native Americans, aims to build an app server that can serve as the foundation for non-open-source commercial offerings.

There already are two open-source J2EE servers: JBoss Group's JBoss server and the ObjectWeb Consortium's JOnAS, but neither is certified by Sun as being compliant with the Java specifications. Many business customers, said Greg Stein,

chairman of the Apache Software Foundation (ASF), want this certification to assure that applications are portable and interoperable across J2EE providers.

"The Apache license is more friendly to business," said Stein. "It's possible for companies to create value-add without being required to give it back to the community."

Under the provisions of the free Apache license, organizations may make revisions, extensions and add on products without being required to submit those additions back to the open-source community.

"The ASF doesn't do anything simply because there's a GPL license and we want an Apache license," said Jim Jagielski, executive vice president of

► continued on page 16

0 Is for Oracle, G Is for Grid

Base software will support grids, service architectures

BY ALAN ZEICHICK

Oracle 9i is yesterday's news: At its OracleWorld conference, held in San Francisco in early September, Oracle Corp. was set to announce its next set of database, app server and Java development tools, all bearing the numbering scheme 10g—with the "g" representing the company's new commitment to grid computing and service-oriented architectures (SOAs).

Grids, according to John Magee, Oracle's vice president for app server and tools market-

ing, "represent an opportunity to use low-cost community hardware to provide higher levels of service and scalability than high-end SMP [symmetric multiprocessing] and mainframe systems." While acknowledging that Oracle is not abandoning its traditional support

for high-end servers, such as those from Sun, he said that the company will increasingly emphasize lower-end servers, such as those sold in its partnership with Dell.

The problem that Oracle is trying to solve with grids, said Magee, is that companies cur-

rently set up separate islands of database and server capability to solve specific problems or to run specific applications. Whether individually or in clusters, those islands are difficult to scale or adjust for changing requirements, he said, and it's not feasible to shift capacity between different computing systems. Grids, by contrast, will make it easier to scale computing resources and be able to accommodate peak loads. "It'll be easier, in this model, to add capacity," he said.

With Oracle's new 10g product family, said Magee, "grids will be supported in the base software." He contrasted that with typical academic-style grid deployments, which he said offered best-effort qualities of service for hand-coded applications. The Oracle 10g software, he claimed, would offer predictable QoS, tools for installing and managing applications, and compatibility with existing database and J2EE apps. In effect,

► continued on page 17

IRONING OUT THE GRID

Ted Farrell, Oracle's architect and director of strategy for development tools, described four steps that his company recommends developers follow as they migrate toward a grid architecture that exploits the Oracle 10g software. These steps, of course, favor Oracle's product strategy.

1. Standardize on low-cost commodity components instead of deploying new applications on high-end SMP servers or mainframes.

2. Consolidate data centers, databases and other islands of computing into grids.

3. Add automation to simplify the day-to-day administration of existing applications on grids.

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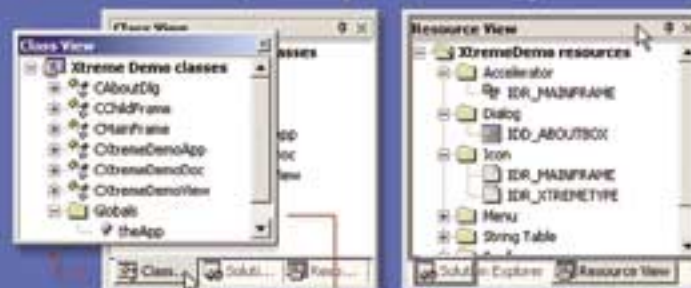
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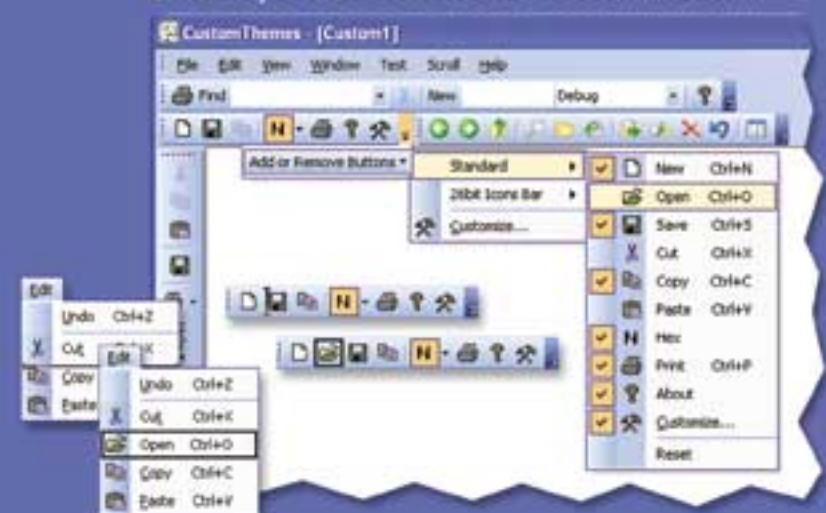
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Perl Community Already Abuzz Over '6'

BY ANDREW BINSTOCK

This summer, an unusual event occurred: A book was published by O'Reilly & Associates about a product that, according to its developers, is six to nine months away from entering beta testing.

Even Microsoft, with its own publishing house and a penchant for releasing books on nonshipping products, doesn't sell books half a year before the first beta: Only great community demand could inspire this decision. And, indeed O'Reilly's "Perl 6 Essentials" has become a bible of sorts

to a group of developers eagerly awaiting the new release of the Perl scripting language.

According to Perl's original developer, Larry Wall, "Perl 6 is the community's rewrite of Perl." Version 6 includes many additions to the language itself and a complete redesign and implementation of the execution environment.

Some of the changes to the language include consolidating the numerous kinds of switch statements into one form that uses the keyword "given." The

use of parameter lists (akin to function declarations in C) are also on tap, as is significantly expanded support for regular expressions: New escape sequences and much more extensive pattern-matching are currently being implemented.

POLLY WANT A PYTHON

According to Wall, the most important change in Perl 6 is the new execution engine. Perl is a dynamic language that is suitable for both high-level coding and scripting. Perl 6 intro-

duces a completely rewritten virtual machine, to serve as its runtime engine.

The idea for this rewritten VM, called Parrot, first appeared in a facetious post to Perl newsgroups by Simon Cozens on April Fools Day 2001, which took the form of an imaginary conversation between Wall and Guido van Rossum, the creator of another popular open-source scripting language, Python. In this faux conversation, they agree to merge both languages into a new language called Parrot.

From this joke arose the idea for the real Parrot: a new syntax-agnostic VM for scripting languages. While Parrot today is strictly a Perl community project, several developers are providing front ends for it that will support other languages.

Parrot's lead developer, Dan Sugalski, said, "On August 16, Michal Wallace released Pirate, a Python-to-Parrot compiler. There are still things to be worked out, of course, and he's waiting on some of Parrot's functionality to get rolled out. By next summer we'll also have a Python bytecode transformation system to turn Python bytecode to Parrot bytecode."

The Parrot VM uses a Parrot assembly language, *pasm*, that relies on an original mix of high-level and low-level instructions, and breaks from modern VM designs such as those in Java and Perl 5 by eschewing a stack orientation in favor of registers.

In O'Reilly's prerelease book, the lead developers and designers of Parrot state the register-

based design was chosen in part because of the wide body of research on register allocation they can use to optimize the VM. Whether registers or stacks are faster remains to be seen.

Miguel de Icaza, the lead developer of Mono, the open-source implementation of Microsoft's stack-based Common Language Runtime virtual machine, disagrees with the choice, dismissing it as based on ideology rather than comparative analysis of which architecture is best.

"The Parrot design is based on ideology because some of the core design considerations are just that: 'real [machines] use registers, hence register-based intermediate code is faster.' An ideology-based design is one where the design decisions are driven by punch lines and not by a careful and quantitative study of the problem at hand," he wrote in his Web log.

According to Sugalski, the Parrot VM has a built-in just-in-time compiler (JIT). Unlike the implementations of JITs on Java and .NET, the Parrot JIT will enable developers to save the generated object code and hence run applications natively should they wish to do so. "There are other tools that will provide binary ability such as a Parrot-bytecode-to-C converter," Sugalski said.

Sugalski expects the first beta of Perl 6 sometime in the second quarter of 2004, with a near-final version later that year, depending on comments and feedback. ■

SuperGlue Adds Context to Metadata

Informatica aims to simplify complex data integration

BY ALAN ZEICHICK

Decrying the complexity of understanding and communicating large volumes of metadata across large enterprises, Informatica Corp. has introduced SuperGlue, a new Web-based metadata management system and repository.

SuperGlue, which became generally available in late August, is designed to let companies extract and analyze

metadata from a variety of data sources, including Web services-capable applications and relational databases, present a unified viewpoint for understanding that data, and create maps and transformations for reconciling disparate data schemas.

"When you use the term metadata today, IT people's eyes glaze over," said Sanjay Poonen, senior vice president of worldwide marketing for Informatica. "It's a technical term that gets shrouded in mumbo jumbo. Our intent is to demystify it, while making it valuable and relevant."

An initial focus for the tool, said Poonen, is corporate compliance and governance—making it possible for top officials to understand where the data rolled up into various reports came from, so they can track down anomalies or resolve questions. "They have to make sure there's backup for every single number that they see on the balance sheet."

The challenge is to deliver the entire context behind a specific number or report result. "Where did it come from? Was



SuperGlue can provide an audit trail over the path and transformations applied to enterprise data as it moves through different data repositories and applications.

it dollars? Was there a currency exchange? What were the properties of the ERP system that led up to that number?" he explained. "That entire audit trail is metadata."

Compounding the problem is that the numbers pass from application to application, which aren't always directly connected and which have their own metadata silos to provide their own context.

Informatica's tool for solving this problem is SuperGlue, which is a server-based application that ties into the different data sources, extracts or constructs the appropriate metadata, and stores it in a repository. The contents of the SuperGlue repository can be used to understand the relationship between those different data sources, he said—which in some organizations could mean tens of thousands of different databases, applications and servers, each with its own data context.

"In an ERP system, you might have master data definitions," explained Shiva Rajaraman, senior product marketing

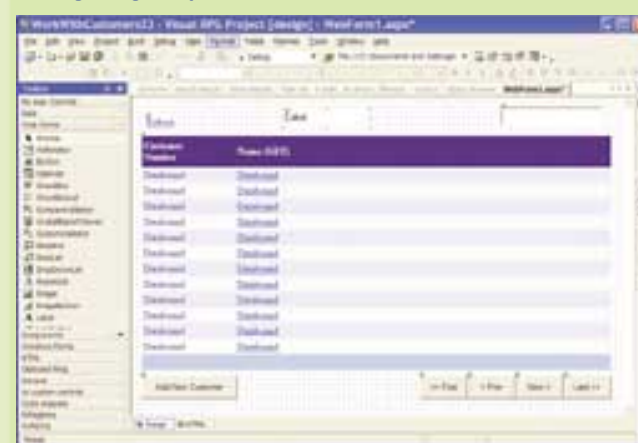
manager. "On the integration side, how is that data transformed from point A to point B? What are the database schema elements, rows and tables? What are the reports, who's requesting them, how are they using it? SuperGlue integrates all that information, and links it in one place, and provides a layer of visibility on top of that."

That visibility is provided by a J2EE app server embedded into the SuperGlue server, said Rajaraman. Connectors feed the data into the SuperGlue server: "It can be Secure HTTP, ODBC/JDBC, Web services, whatever [the data source] supports." From those sources, it grabs users, schemas, table sources and other data needed to construct a metadata model in the repository, he said.

While SuperGlue can leverage existing installations of PowerCenter, Informatica's data integration server software, Poonen emphasized that PowerCenter is not required.

The cost of a typical SuperGlue installation begins at US\$150,000, said Poonen. ■

RPG FOR .NET



ASNA Inc. has ported its Windows-based RPG tools to run on the .NET Framework. The new Visual RPG for .NET compiler runs within Microsoft's Visual Studio .NET editor, and provides the same types of Windows Forms, Web Forms and GUI components as other .NET languages.

News Briefs

COMPANIES

Logic Library LLC is integrating its Logidex component management software with **ComponentSource's** online marketplace for third-party components . . . **ProActive Technology LLC**, which does custom software development, has spun out a new company, **Vigilix LLC**, to commercialize ProActive's software monitoring and notification tools.

PRODUCTS

Fiorano Software Inc. has updated its enterprise service bus software. **Tifosi 2002 ESB 3.0** contains database adapter enhancements, an SAP adapter and new administrative tools. It also contains a new workflow component, which lets developers add manual intervention to workflows, and allows embedded JavaScript code within the embedded mapper/transformation engine . . . The next version of **Komodo**, an IDE for open-source languages from ActiveState Corp., will run on Solaris, as well as Linux and Windows. Komodo 2.5, now in beta, also has faster start-up, tab-switching and dialog-box loading, and has numerous changes to its GUI builder . . . Teamstudio Inc. has released a free utility, called **Agent Data Tool**, designed to help Domino/Notes developers clean up orphaned data notes. The tool scans multiple Notes databases to identify agent data notes that are no longer referenced by agents, and allows developers to delete them . . . Actional Corp. has released a version of its Web services management software for BEA's WebLogic 8.1 enterprise platform. **Actional for BEA** contains the company's SOAPstation service broker, Looking Glass management server, a set of agents and a collection of WebLogic Workshop controls . . . MiddTec GmbH has released **MiddCor 1.1**, a CORBA object request broker for .NET. MiddCor, delivered as a C# component, works with any .NET language; version 1.1 allows secure data transmissions through SSL encryption . . . jBase International has updated its eponymous multivalued database. **jBase 4.1** improves multithreading with a new set of thread-safe libraries, allows UTF-8 multibyte character sets for internationalization, has enhancements to its JQL query language, has a new XML Extract function, and has new interoperability tools for Java and .NET. It also now runs on IBM's iSeries and zSeries servers . . . Software Tree Inc. has updated its object-relational mapping tool for Java. **JDX 4.1** has a revamped JDXStudio graphical mapping tool and a new bundled lightweight database engine. It also improves integration with ANT build scripts . . . With version 3.1 of its **Architect** modeling software, Codagen Technologies Corp. has added two more UML diagram types: Sequence and Collaboration. The software, which parses UML diagrams and generates Java, C#, C++ or Visual Basic code, costs US\$6,500 per seat . . . AlachiSoft has updated its **TierDeveloper** object-relational mapping tool for Windows. Version 3.0 now plugs into Visual Studio .NET 2003, and can generate VB.NET and C# data-access components, as well as create ASP.NET apps to create those components. TierDeveloper now also works with MySQL 4.0 . . . Version 2.1 of Parasoft Corp.'s **SOAPtest** tool adds client and server conformance testing for WS-I's Basic Profile 1.0 for Web services interoperability . . . Hit Software Inc. has renamed and upgraded its DB2Motion real-time data replication software to reduce its focus on IBM's DB2 database. Now called **DBMoto**, version 4.0 works with Sybase, Oracle, SQL Server, Access and IBM's iSeries and mainframe databases. The update also has new administrative wizards and enhanced OLE DB and ODBC drivers.

PEOPLE

Gary Warren has joined AppForge Inc., a purveyor of mobile and wireless development tools, as its new CEO. Warren, formerly SVP for Symantec Corp., takes that title from founder **Doug Armstrong**, who remains chairman and CTO.

STANDARDS

By November, the Open Group and IEEE will be certifying software compliance to the latest version of **POSIX**, known as IEEE 1003.1-2001. ■

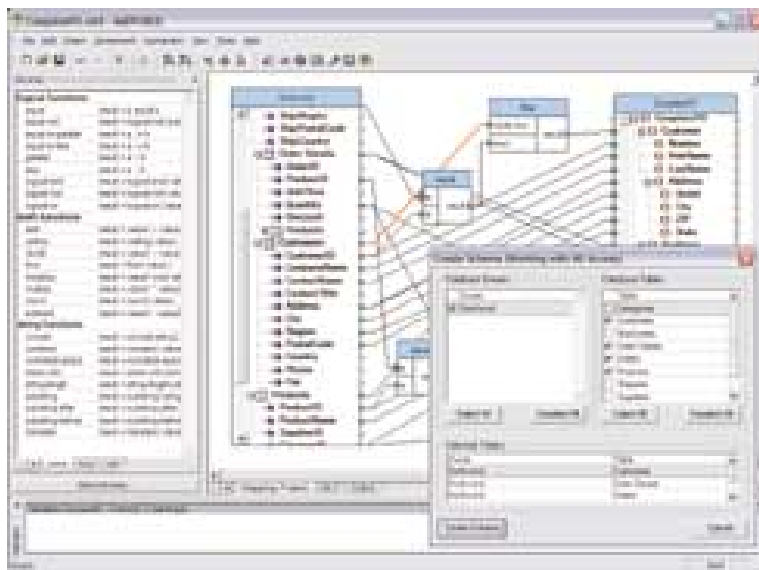
Altova Takes on XML Database Mapping

BY ALAN ZEICHICK

In early September, Altova Inc. was set to release the latest upgrades to its popular XML Spy development suite, as well as introduce a new XML-to-XML and database-to-XML mapping tool, called MapForce 2004.

MapForce, according to Larry Kim, Altova's technical director, is designed around the same principles as Microsoft's BizTalk mapper, helping developers move from ordinary XML documents to those organized around specific XML schemas. "We've done that in a more generalized fashion," said Kim, because MapForce isn't tied to a specific server or database engine, but can communicate with any ODBC- or ADO-compatible database. He added that Altova believes that the new tool, with a list price of US\$499, is well suited to the mass market.

The tool, he explained, provides a graphical interface to map the relationships between two or more content models, which may be XML documents, a schema or a relational data-



MapForce 2004 provides a visual interface for creating XSLT mapping and translations between different XML schemas.

base. After the mapping is created, MapForce generates either straight XSLT code, or creates Java code that can connect to a database and perform the translations. Future versions of MapForce will be able to generate C++ or C# code within a year, Kim said. MapForce does not have round-trip engineering features, however; it cannot generate a visual representation from an existing XSLT document.

The main new feature for the

updated XML Spy suite, which now also is numbered 2004, is its integration with Microsoft's Visual Studio .NET 2003, said Kim. XML Spy now can run directly within the VS.NET environment. The software also includes what Kim described as the first mainstream visual XML differencing utility, as well as an experimental implementation of an XPath 2.0 analyzer.

Kim also said that the differencing utility is more "XML aware" than early implementations in previous versions, and can more easily handle namespaces, white space, comments, text case and other items, such as the ordering of fields within the document's hierarchy. Via configurable options, he said, developers can decide whether they want to see all literal differences between XML documents or schemas, or treat specific fields as logically equivalent, even if the literal text differs.

Altova also released 2004 versions of its StyleVision stylesheet designer and Authentic, its free editor for XML documents based on stylesheets. Developers and forms authors can now use XPath to create automatically calculated fields and to validate business logic within a stylesheet, Kim said, as well as dynamically create complex tables. An XPath wizard simplifies the process, he said; changes to Authentic make it easier for end users to work with those more dynamic documents, he added. ■

Sun Back on JDO Bandwagon

BY EDWARD J. CORREIA

Yielding to customer pressure, Sun Microsystems Inc. has once more modified its Java Data Objects strategy—this time to embrace the specification again. The company has become a charter member of JDOCentral.com, a developer portal devoted to advancing the JDO spec, which defines how developers can gain object persistence from relational databases without knowledge of the host database's query language.

In April 2002, Sun dropped its JDO implementation from Sun ONE Studio tools, at the time citing divisions between its teams of programmers building Sun's developer tools and those responsible for runtime software.

But according to Craig Russell, an architect with Sun who also led the JDO spec (JSR-12) through the Java Community Process, Sun customers using

J2EE were demanding more choices than container-managed persistence, bean-managed persistence and JDBC for object persistence.

Though the move does allow Sun to sit on JDOCentral's seven-member steering committee and vote on its initiatives, Russell said being a charter member of JDOCentral.com is primarily symbolic. "It doesn't really give them much power. The idea is to re-emphasize Sun's commitment to choice," he said, adding that the company is developing a new implementation of the spec that it might include in future versions of its tools.

"We are still working on that technology, but there's more work to do to expose the underlying JDO interface to use as an [API]," Russell said, but he would not comment on when or whether it would be released as an API. ■

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Macromedia Puts Forms Into Flash

Studio MX 2004 looks to attract VB, Delphi developers with timeline alternative

BY DAVID RUBINSTEIN

Macromedia Inc. late last month released Studio MX 2004, its development kit for creating

graphics-intensive Web interfaces, with an enhanced Flash MX Professional 2004 option that the company says will make

it easier for Visual Basic or Delphi developers to use.

Flash MX Professional has been built to present a forms-

based metaphor to its users, similar to the experience of programming with the Microsoft or Borland tools, said Norm

Meyrowitz, Macromedia's president of product.

"We wanted to give them something that was familiar," Meyrowitz said. The new version also employs the usual Flash timeline experience, and now allows less-technical users to drag and drop elements onto the timeline for use in audio and video presentations.

"It's not just applications" that people are creating with Flash, but tutorials, product demonstrations and video conferences as well, so allowing business people to create these without tying up developers is a savings of time and cost, Meyrowitz said.

"We talk to companies using Web sites for promotion or commerce, and they all ask, 'How do you stop the falloff?'" he said. "These richer experiences help visitors complete the transactions. If you click through 17 Web pages but can't see what you want, you won't complete the transaction."

MX FAMILY UPDATES

Studio MX 2004 also includes new releases of the Dreamweaver HTML editor, the Fireworks design tool, and the Freehand vector graphics tool.

Dreamweaver MX 2004 now has a WYSIWYG tool for modifying Cascading Style Sheets, allowing users to change the entire look of a Web site in one shot without having to do intensive code rewrites one page at a time, Meyrowitz explained. Fireworks now can run headless from within Studio, so users don't have to switch tools to use the Web graphics editor, while Flash MX also now runs ActionScript 2.0, Flash's scripting language based on ECMAScript 2.0, and supports Unicode.

Meyrowitz hinted that Macromedia will release a back-end server, code-named "Royale," some time in the future, but would not provide more details. "This is the beginning of the 2004 rollout, but it's not the end," he said. "There's a master plan."

Studio MX 2004 sells for US\$999 with the professional edition of Flash MX 2004, or \$899 with the standard Flash MX 2004. ■

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TopCoder Software Thrives on Competition

BY DAVID RUBINSTEIN

TopCoder Inc., the company that sponsors programming competitions at trade shows, has spun off TopCoder Software as a vehicle for selling

software created by the best of the competitors.

"We are leveraging our member base as a distributed development environment to create software for our customers," said

TopCoder Software president David Tanacea, who claimed to have signed up 6,000 active developers from a 28,000-member base. "From the competitions, we have ended up with

many qualified software developers. We have utilized 600 [developers] to develop commercial software. We've only just started tapping into it."

Through the course of run-

ning its competitions since the company was founded in 2001, TopCoder has been able to assemble catalogs of reusable infrastructure components, such as those for document and workflow management, security and reporting, among others.

The company has a Java catalog based on the 1.4 SDK and J2EE 1.4, and also offers .NET components written in C#, all by subscription, Tanacea said. Each component includes the specification, class, sequence and persistence diagrams, the code, unit test cases and full documentation, he added.

"The reason the catalog is so powerful... is that we're the manufacturer," Tanacea explained. "We can guarantee the standardization of deliverables. The level of rigor is the best I've seen."

As for its development offering, the company is basing its development methodology on the competition framework already established. When a customer contracts with TopCoder Software for development, the company



Developers vie for commercial freelance projects, says Tanacea.

sends a project manager on site for the specification phase and requirements gathering. Design projects then are posted on the TopCoder Web site with the amount of money the company will pay the programmer to get the job completed. The company selects two submissions, which go to peer review. The one chosen will go on to the development phase and get paid the full amount. The other entrant will receive half the price for his design submission.

The membership, he said, is made up of roughly half college students and half professionals, with 75 percent of the members located in the United States. Tanacea said developers working on components will not be allowed to work on applications at the same time, ensuring more review of projects and alleviating some of the time pressures under which the developers work.

TopCoder's customers include Philip Morris USA Inc., which outsources its development projects; and energy company Detroit Edison, which licenses the component catalog to use as the basis of its own component-based development efforts, Tanacea said. ■

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CollabNet Adds Project Tracker to SourceCast

BY DAVID RUBINSTEIN

A project-tracking tool is among the key new features of SourceCast 2.6, CollabNet Inc.'s collaborative software development environment.

The new Project Tracker is based on the open-source Scarab issue tracking project (scarab.tigris.org) led by CollabNet's Jon Stevens, according to Robert Clawson, CollabNet's director of product management, and lets users define artifact types for tracking throughout a project's life.

"The most common [artifacts] are defects, but users also can track requirements, enhancement requests and documents," among other things, Clawson explained. Project Tracker augments the Issue Tracker component already built into SourceCast, he said, allowing the tracking of different artifacts across multiple projects and operating systems.

Version 2.6 also allows for

searches across various types of content such as mailing lists, discussion forums or project definitions contained in metadata; the earlier version restricted searches to HTML content already in the system, Clawson said.

The new version also integrates with the CVS version-control system, so that project managers can set up a system in which an artifact must be associated with someone on the development team before it can

be checked into code, or a comment must accompany a code change for the check-in to become valid, he said.

SourceCast 2.6, which is sold on a subscription basis for US\$200 per month per user,

also now can be accessed from IBM's Eclipse IDE, adding to existing support for Borland's JBuilder, Oracle's JDeveloper and Sun's NetBeans open-source project and Sun ONE Studio, Clawson said. ■

PRAMATI REVS J2EE SERVER

BY YVONNE L. LEE

Pramati Technologies Pvt. Ltd. upgraded its namesake J2EE server in late August to offer higher performance and a new management console.

The new customizable management interface, called Pramati Server Dashboard, shows clusters of servers used in an application, according to the company.

Version 3.5 of the Pramati Server includes a feature to directly run applications already deployed on Apache's HTTP Server or Tomcat or BEA's WebLogic app server. A WebGate plug-in lets the Pramati server run and manage applications deployed on Microsoft's IIS, according to the company.

An enterprise edition is priced at US\$5,000 per processor and adds clustering over a standard edition, which is priced at \$2,500 per processor.

The company also introduced a free modeling tool. DesignViewer can visually render all components of an existing J2EE application, even when no documented design or model exists.

A beta version of DesignViewer, as well as a demo of Pramati Server 3.5, can be downloaded from www.pramati.com. ■

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SmartDraw's XML Diagramming Tool Scripts Processes

BY DAVID RUBINSTEIN

Diagramming tool vendor SmartDraw.com Inc. has created VisualScript XML, a tool that the company says allows nontechnical users to graphically diagram business processes, organization charts or other complex diagrams using symbols, and then generate an XML-based script that represents that workflow.

According to the company, diagramming a business process using VisualScript is similar to creating a standard diagram using tools such as Microsoft's Visio or SmartDraw's own SmartDraw tool. The difference is that the drawing is then converted into an XML representation by putting together XML code that's preprogrammed into the various symbols and shapes, based on the drawn relationship between those symbols.

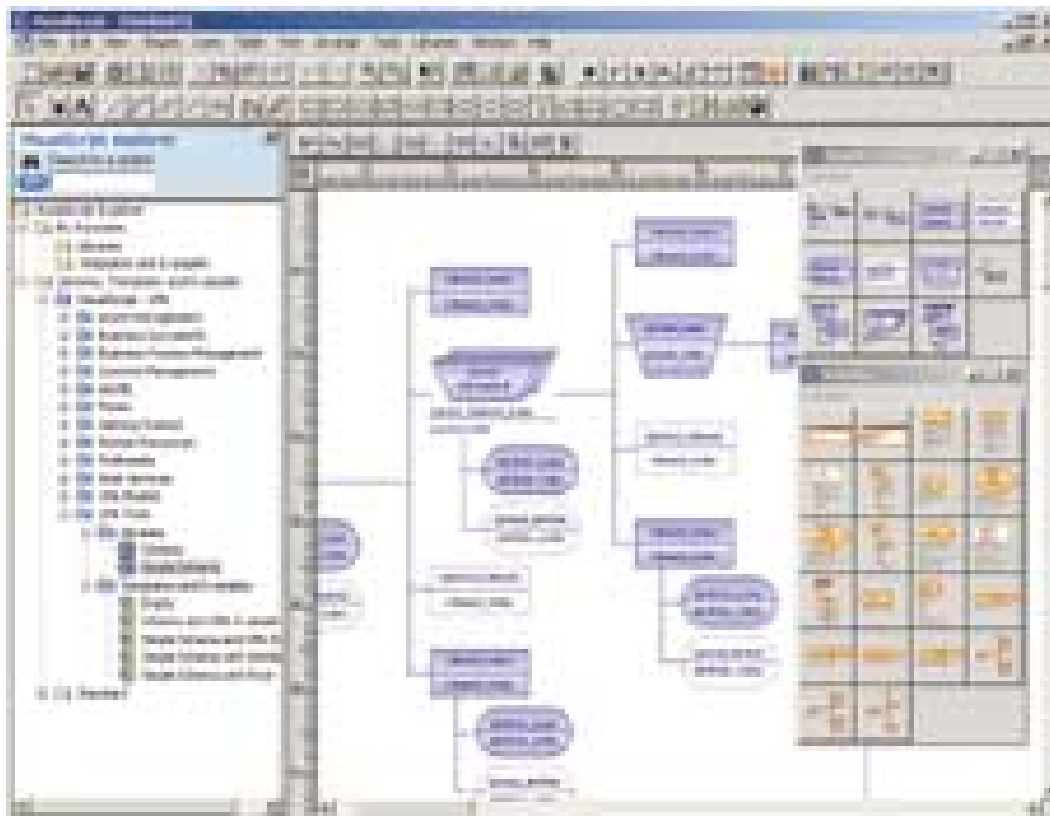
The benefit of using a visual tool, according to Kristen Kuykendall, director of prod-

ucts and services, is twofold: XML represents a clear way of describing the business process, and there's an assurance that the XML script accurately represents the drawing.

Companies within an industry, or partners to a company, can work collaboratively to define their processes and XML syntax in a visual way, bringing business analysts into the discussion in ways in which they could not have participated before, Kuykendall said.

David Webber, business development manager, claimed that VisualScript, which sells for US\$495 per seat, improves on the use of forms for gathering XML data because the tool can be used to take advantage of the hierarchical nature of XML by enabling users to assign relationships. Forms, he said, do not allow for the consideration of relationships.

Also, the tool allows business



VisualScript XML creates XML script from workflows that can be created from predefined schema elements.

users to create business processes without having to understand XML. "I've been working with XML since the early proposals in 1998, and we haven't crossed the bridge to reach the average desktop user," said Web-

ber. "Microsoft is trying to get there with [Office 2003's] Xdocs, and we're finally starting to have average users able to do this."

Currently, people creating XML schemas must define many different types of interac-

tions, yet a trading partner might need only one, forcing the partner to sift through the entire schema to find the one appropriate to its needs, Webber said. A visual representation, he claimed, makes the job easier. ■

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M7 ADOPTS APACHE STRUTS FOR ITS ASSEMBLY SUITE

BY YVONNE L. LEE

J2EE development tools maker M7 Corp. is due to release this week an update to its Application Assembly Suite that replaces its proprietary approach with the ability to visually edit Struts files.

Version 4.0 of the application suite is designed to make it easier to build JSP and J2EE applications by working from pop-up windows and a map that resembles a flowchart.

The suite is being marketed toward developers with some Java programming experience, but who may not be up on J2EE and JavaBeans, said vice president of marketing Hollis Tibbetts.

"You could write a database-driven application and not have to program any Java," said Tibbetts. "If I wanted business logic more complex than decision trees, I would have to know some Java, but I wouldn't have to be a Java expert, and I certainly don't have to be a J2EE expert."

Struts, a part of the Apache Jakarta project, is a framework for building Web applications using Java Servlets, JavaBeans, ResourceBundles and XML. ResourceBundles are Java classes that

contain locale-specific objects. When programs require a locale-specific resource, the program can load it from a subclass that is appropriate for the current user's geographic location.

Struts uses a model-view-controller architecture, as does the Application Assembly Suite, but before the current version, M7 used a proprietary framework and assembly approach in its tools.

Other new features include an inline Java code editor, and plug-ins for working directly within Borland's JBuilder and IBM's Eclipse IDEs. The company also has split its offering into two separate editions. The US\$1,995 per developer Professional Edition, Tibbetts said, builds only JavaServer Pages servlets; it's geared toward those departments and smaller businesses that don't use Enterprise JavaBeans. The heavier Enterprise Edition, at \$12,500 per server processor, can build EJBs, and can integrate with business applications using WebMethods' Integration Platform. The Enterprise Edition is priced per processor because it runs on a J2EE app server, which tends to be priced per server, Tibbetts said. ■

Rational Plans to Stay the Course

Code quality, reuse, best practices re-emphasized

BY DAVID RUBINSTEIN

At the Rational User Conference in late August, IBM Corp. reaffirmed the division's commitment to tying the Rational products more closely to other IBM software tools, and announced it was turning over its Reusable Asset Specification to Object Management Group Inc. for consideration as a standard and to become its steward.

The Reusable Asset Specification "never went away," said IBM marketing vice president Eric Schurr, though he acknowledged that Rational went quiet on it for some time leading up to IBM's acquisition.

Originally conceived in 2000, the spec "is a way to raise the level of abstraction" for software reuse, Schurr claimed. "There were six or eight companies involved when we first announced [the specification], and most of those maintained interest, but we didn't talk about it as much." Rational executives have indicated for some time that OMG would be the choice for standardization, as the RAS is tied somewhat to the Unified Modeling Language.

IBM also expressed its intention to re-emphasize Rational's "Quality by Design" initiative to eliminate creation of defects, and to unify many of Rational's tools on IBM's Eclipse framework. "The

goal is to unify these technologies around a common structure," Schurr said. "Eclipse is the centerpiece of our architectural strategy."

IBM is tying Rational XDE Developer more closely to WebSphere Studio for greater code generation and reuse, while bringing it to Eclipse to take advantage of what Schurr called "an unprecedented level of semantic integration between the tools."

The Quality by Design effort is meant to show IBM's commitment to minimizing the time it takes to detect an error, repair it and redeploy the revised code, Schurr said. "We'll get into things like pattern detection at the design phase that can lead to the detection of errors, and structural and static analysis of code."

The company is working to create what Schurr called "deployment-aware tools" by way of its Tivoli product family—using Tivoli's monitoring tool to sit atop the Rational testing tools to let users know immediately that something in the application has gone wrong, and using Tivoli's deployment capabilities to work with Rational configuration management tools.

Schurr indicated IBM Rational will continue to evolve its products for use in Microsoft .NET environments as well, although he offered no specifics. ■

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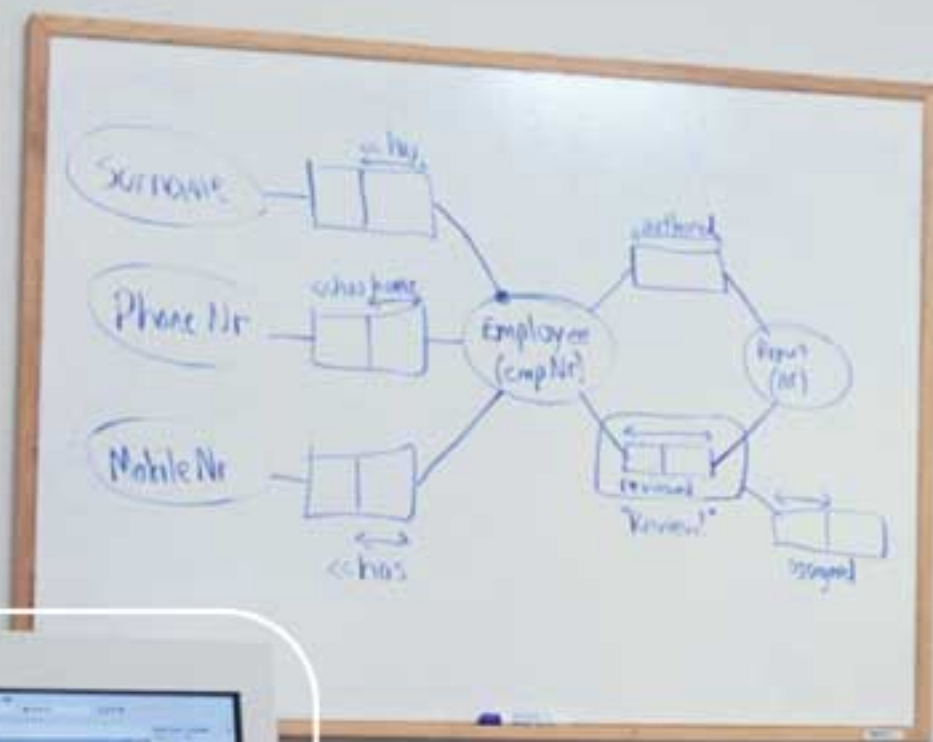
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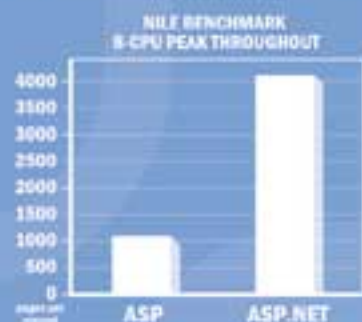
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Tangosol Updates J2EE Clustering Software

BY YVONNE L. LEE

Tangosol Inc. in mid-August upgraded its J2EE cluster management software, offering a set of incremental updates to tide developers over before the software's major overhaul in December.

The clustering software, Coherence 2.2, is designed to facilitate sharing and managing data in a cluster. It coordinates updates to the data, replicating and distributing data modifications across the cluster, and notifying servers of data modifications.

Coherence makes production software used in a clustered environment run more quickly, according to the company.

"It relieves the application developers of the need to care about the underlying infrastructure" behind clustering, explained Marty Dow, chief architect of Internet services at GEICO Direct Auto Insurance, in Chevy Chase, Md., which uses the software.

Improvements in version 2.2 fall into three categories, according to Tangosol president Cameron Purdy. First, Tangosol

has made it possible to more finely configure the caches in Coherence 2.2. With the new version, organizations can use XML deployment descriptors to specify what goes into the application caches, Purdy said.

In addition, version 2.2 has configurable cache eviction policies. "It allows itself to lose data that's not necessary to keep around," Purdy said. Users can specify one of two commonly used algorithms: evicting the least recently or least frequently used pieces of information, he said. Or users

can use Tangosol's own algorithm that tries to pick the best cache retention algorithm.

In addition to the new cache configuration and cache eviction schemes, the program has thread pooling to make it possible to designate how different servers in the cluster perform a task, Purdy said.

The forthcoming major update, version 3.0, due at the end of December, will add disaster recovery and support for geographically distributed clusters. The geographically distributed management would be

useful for situations such as the Northeast power blackout, which occurred shortly after the Somerville, Mass., company released version 2.2, Purdy said. Customer requests for this kind of extra level of data protection began surfacing in late 2001, he added.

Coherence 2.2 is available now. A license for the standard edition costs US\$1,995 per processor. Pricing for the enterprise edition license, which supports grids and distributed queries, is \$4,995 per processor.

According to Purdy, Coherence has been tested with BEA's WebLogic and IBM's WebSphere app servers. ■

GERONIMO

◀ continued from page 1

ASF and chairman of the Geronimo project.

"There was some interest in having another J2EE container project. There was also some concern in the open-source community that some of the developers who were working on JBoss didn't feel that environment was as open as they would have liked," Jagielski estimated a production version of Geronimo would be available "within 12 months."

"Our position is we are happy to find a new open-source J2EE," said Jean-Pierre Laisne, vice president of ObjectWeb. "The main issue we see is the license issue." Under the Apache license, companies such as Microsoft would be able to sell a fully compliant J2EE server without paying or contributing anything, he said. ObjectWeb is working with the ASF to try to work out a mutually agreeable licensing structure, he added.

Not only would the license make it easier for companies to profit on innovations based on the Geronimo server, but Apache's status as a nonprofit foundation makes it eligible for scholarships to conduct the tests it needs to become J2EE certified, said Stein.

"The fundamental goal of the scholarship program is to encourage or permit nonprofit implementations of Java technologies," said Glen Martin, J2EE strategist at Sun. "Some people may think mistakenly that it is about open source, but it's actually about nonprofits versus for-profits." While companies profit from software built on Apache technologies, Apache itself does

not make money, he said, comparing the foundation to universities, which also do research and license that research to profit-making companies.

"Apache as an organization has no revenues whatsoever. I'm not aware that they charge a single dollar in licensing or support," Martin said. "We can contrast that to JBoss. JBoss is very much a commercial enterprise. They happen to use an open-source development model."

Several of Geronimo's contributors are from a company called the Core Developers Network, a group of developers who had been working on the JBoss project but were not employed by the JBoss Group.

The Core Developers had been working to develop a fork, or incompatible version, of the JBoss server. The fork was not going to be used in Geronimo, but according to the Web site accompanying the forked software, called Project Elba, it would have been used to provide test code for Geronimo while it was being tested.

Recently, the Core Developers Network members were denied access to the JBoss source-code repository. "Everyone at Core Developers who is involved has moved over to Geronimo," said Jeremy Boynes, partner at Core Developers. "[The JBoss Group] actually evicted us."

JBoss pulled the Core Developers' access to prevent conflicts of interest, insisted JBoss president Marc Fleury.

"The board is really interested in the certification and having the ability to make additions," said Apache's Stein. "ASF is looking for those two things, not to provide a vehicle for disgruntled JBoss people." ■

UML 2.0

◀ continued from page 1

not scaling up as needed to get the most of using UML within a Model Driven Architecture. "We might have to modify the package/merge mechanism. People want to make sure the models will fit on a disk."

The second problem involves removing some flexibility that was built into the compliance scheme to allow software designers to mix and match various parts of UML. "It's too flexible and is creating implementability issues," he explained.

The finalization task force posted OMG's final adopted specification on Aug. 8, and adopters have until mid-September to call problems to the

task force's attention. The draft of the final standard, also called the available technology, is set for the end of April 2004.

The final available technology has three new capabilities that Selic said users were clamoring for—the ability to model architectural structures, interactions and activities.

For modeling architectural structures, Selic said the design task force built on the work of David Garlan at Carnegie Mellon University, who Selic said did some of the definitive work on architecture description languages.

The modeling of interactions now will let software designers combine simple interactions into larger sequences, and reuse them across different systems.

For example, he said, to define an automated teller machine process, you first must define a sequence to enter a password. That password sequence could be reused in other processes that require it.

The ability to model the flow of activities uses the BPEL4WS specification developed by IBM and Microsoft, Selic said. The capability allows for such things as defining how the interruption of a process will be handled and for modeling unstructured processes.

BPEL4WS was chosen because more than one submission team to the UML 2.0 spec requested it, Selic said. "It seems to have the broadest support in the industry, as kind of a superset of the other standards." ■

LONG ROAD TO ACCEPTANCE

The process of getting a specification accepted by the OMG is a lengthy one, covering numerous votes, revotes and finalizations before it finally becomes an available technology.

- 1 A technical committee within OMG creates a task force to issue a request for proposal.
- 2 An OMG architecture board approves the RFP.
- 3 The technical committee votes to issue the RFP.
- 4 OMG members submit letters of intent to submit proposals.
- 5 On or before the initial submission deadline, companies make their submissions.
- 6 After a comment period, a revised submission deadline is established.
- 7 After further review, the task force votes to recommend adoption of the submission to the parent technical committee.
- 8 The architecture board votes to approve the submission.
- 9 The technical committee votes to recommend the spec to OMG's board of directors.
- 10 A board of directors business subcommittee reports to the board on the business committee questionnaire responses from the submitters.
- 11 If at least one satisfactory response is received, the board of directors votes to adopt the specification. At this point, the submission becomes an official OMG adopted specification.
- 12 The technical committee charts a finalization task force.
- 13 The finalization task force performs the first maintenance revision on the spec.
- 14 The revised version is adopted as an official OMG technology, through the same series of votes as the original submission (task force, architecture board, technical committee and board of directors).
- 15 The specification gets a release number and is designated an OMG available technology.

Source: Object Management Group Inc.

QA Gets Automated Security Testing Tool

Sanctum completes coverage of application life cycle with post-development offerings

BY DAVID RUBINSTEIN

Software quality can't simply mean that a product meets functional requirements—it also must mean the product is secure, according to Sanctum Inc., a developer of vulnerability testing software. To that end, the company earlier this month released AppScan 4.0 QA Edition and AppScan 4.0 Audit Edition, providing an automated testing tool that can be used from development through production, it claims.

"We're seeing a lot of new applications in development that will feed Web services environs, so it is more important now to give developers and QA the ability to test" before deployment, said Diane Fraiman, vice president of marketing for the Santa Clara, Calif.-based company. "It's an issue of the complexity of Web sites and vulnerabilities as well as an explosion in the size of Web sites."

The QA Edition allows users to test the seams between applications, Fraiman said, as well as the apps themselves, and provides comparative analyses for regression testing. Advanced delta analysis capability built into version 4.0 provides intelligence behind the results, according to Steve Orrin, the company's CTO.

"Delta analysis allows you to compare apples to apples" during regression testing, and allows for the enforcement of predictive, reproducible tests, he said. This is a key feature for development shops working toward compliance with the Capability Maturity Model put forth

by the Software Engineering Institute. "In CMM, the guidelines are driving the issue of security as being a part of quality," Orrin added.

The Audit Edition allows auditors to enforce compliance with security issues both internally and externally, Fraiman said, allowing applications that invoke Web services to be monitored for vulnerabilities.

The 4.0 products are built on an improved runtime engine that can take advantage of multithreading capabilities for optimized tests, as well as integration into the tools QA professionals already use through an updated API and command line interface.

Fraiman hinted that Sanctum is working with a test platform provider to do a native integration that should be completed sometime this year. The developer edition of AppScan runs on engine version 1.7, but that product will be synced with the new engine for its next release.

Other new features include a graphical viewer that allows business users to understand the security defects and present "worst-case scenarios" that can result in a site shutting down, or identity theft, Fraiman said, citing two examples of the types of vulnerabilities to which a Web site is open.

Both new products are offered for an annual subscription of US\$15,000 or by perpetual license with updates available through an annual maintenance agreement. ■

ORACLE

< continued from page 1

he said, "we want to virtualize hardware and middleware resources," so that developers don't have to manage the grid plumbing.

"We want developers to be able to run existing applications on grids, just by writing one-layered applications," he added, implying that grids are an extension of the J2EE's ability to distribute EJBs across application servers. But the true benefits of grid computing, he said, come when building new applications. That, he claimed, will require new application architectures: "Developers will have to use SOAs to deliver services rather than large monolithic applications."

To help developers move to SOAs, Oracle is adding a new set of runtime classes to its JDeveloper 10g Java IDE. Called ADF, or Application Development Framework, the classes are layered atop J2EE- and WS-I-compliant

interfaces. According to Ted Farrell, Oracle's architect and director of strategy for development tools, the runtime is designed to operate on any J2EE-compliant app server—not only on Oracle's server. "It'll run on [BEA's] WebLogic, JBoss and others," he said.

However, Farrell emphasized that Oracle doesn't expect its traditional scalability solution—clustering—to go away. An Oracle 10g grid, he said, would be made up of clusters of Oracle servers. Applications would still be deployed onto clusters, each of which consists of a combination of databases, app servers and storage. However, by linking those clusters in grids, they gain additional scalability and manageability, he said, plus the ability to handle peak loads efficiently.

Neither Farrell nor Magee would provide a time frame for the Oracle 10g database or JDeveloper tools, but the app server is scheduled to be available in October. ■

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Study Urges Wireless Carriers to Adopt Middleware

Yankee Group argues that integration is fundamental to enterprise infiltration

BY EDWARD J. CORREIA

If wireless carriers are to penetrate the enterprise, they must adopt and deploy middleware. That's the conclusion of a study published in August by Boston-based communications research firm The Yankee Group, which determined that the software is necessary to fill the void between wireless devices and corporate back-end systems.

According to XJ Wang, a Yankee Group senior analyst and author of the study, carrier-provided middleware will be attractive to the enterprise by reducing the costs of ownership, and to developers by shifting some of the complexities to carriers, freeing them up to work on the core functions of their applications.

Eugene Cox, director of product management at IBM Corp.'s Pervasive Computing Division, agreed with the study's assertions, and spoke of the difficulty of constructing wireless networks. "The biggest challenge we all face is the variety and complexity of the ecosystem

and pieces you have to stitch together to make a complete and working solution. The study communicates the value of middleware as a normalizing layer between a set of applications—where the information is—and a diverse and heterogeneous world of different and varied networks, device capabilities, user interfaces and security requirements."

The study identifies five fundamental challenges to deployment of mobile computing (see chart). And although a previous Yankee Group study concluded that wireless middleware touches all seven layers of the OSI model, the current study indicates that to best address these challenges, the most effective carrier-hosted middleware

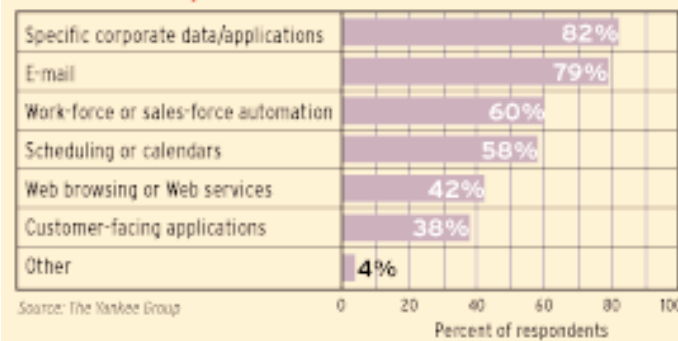
should reside in the top two, which the report refers to as application-layer middleware and presentation-layer middleware. "Most applications will be accessible via a browser, and a message-based client provides a better UI," Wang said, adding that browser- and message-

based clients will ultimately emerge as the dominant wireless client types.

The determination of what data to display and how to display it is handled exclusively by the presentation layer, the study explains, while application optimization is addressed with a combination of business logic and network infrastructure. Translating protocols for low-bandwidth and high-latency networks is addressed by WAP gateways, and limited-coverage networks can be addressed only by further carrier investments in radio base stations.

Several carriers already are providing some of these services; the study cites SprintPCS as perhaps the best example. Sprint currently offers mobile executives using its voice services access to corporate e-mail, files and WAP-based applica-

What applications are the key drivers for a wireless data-enabled system?



tions, all with some form of security, the report said. Wang said additional security should be provided by developers, who must "make sure business logic reflects their security requirements. For example, never store enterprise data on a middleware system."

Web services are presented as a panacea for simplifying the union between wireless devices

and back-end enterprise applications. "Once there is a front-end Web services interface," Wang explained in his report, "providing wireless access is just another infrastructure play, a matter of how to display it on a smaller device."

Top drivers of wireless data-enabled systems, according to the study, are corporate data applications and work-force automation, yet according to Wang, carriers are not concentrating their middleware efforts there. "Carriers are providing [only] wireless connectivity for those applications, [but] I am not aware of carrier-hosted solutions for those. Carriers are focusing on standard applications, such as mobile e-mail." ■

FIVE FUNDAMENTAL CHALLENGES TO MOBILE COMPUTING DEPLOYMENT:

1. Delivering apps to small devices
2. Translating protocols for low-bandwidth, high-latency and limited-coverage networks
3. Selecting the optimal app configuration
4. Extending enterprise control beyond the firewall
5. Delivering the right apps to mobile users

Source: The Yankee Group

Encirq 3e Scales Down Database to 20KB

Claims smaller database empowers 16-bit microcontroller-based systems

BY EDWARD J. CORREIA

Doing more with less. That's among the principles of any successful company, and the stock in trade of Encirq Corp. with its Encirq 3e, an application-specific database released in mid-August that the company claims can do the work of an enterprise database in as little as 20KB of microcontroller memory.

"We did not start out with an enterprise system and scale it down," said Encirq founder and CEO Mark Vogel. "We started from scratch [to build] a database that is as functional in 16-bit microcontrollers within a 32KB memory footprint as it is in 32-bit and higher processors in 32MB."

Vogel said Encirq 3e is most at home in the cost-conscious worlds of telematics and industrial control device development. "Auto manufacturers told

us they were starting to outgrow the capabilities of their current [16-bit] processor architecture and memory footprint," he said. "[With version 3e], we're allowing them to fit back within that architecture. We are allowing people to do more with less. In the lab, our guys have seen footprints as small as 20K." The prior version, Encirq 2e, required about 100KB of device memory.

Unlike conventional databases, Vogel said, which cram in thousands of mostly unused features, each instance of Encirq is unique. "Someone at Oracle once told us that any particular Oracle application may use only 7 percent of the functionality of Oracle. But every application uses a different 7 percent. Our product generates a database specific to the functions and features

used in your embedded application; the database object is specific to the functions you need. There is no fixed database."

So how did the footprint shrink from 100KB to 20KB? Eugene Buechele, Encirq's CTO/COO explained: "As we gained experience with real-live uses of the product, we were able to analyze how these

applications are actually built. We were able to optimize the software we generate so it could be optimized more efficiently by the compilers people use."

The company also claims improved performance in the new version, which Vogel said expands its potential target processor types. "We are hearing more customers wanting to

use smart sensors and 16-bit microcontrollers in peer-to-peer integrated solutions that have a common relational data model across an entire machine. We allow that to happen because we can fit into a [smaller] memory space."

Available now, Encirq 3e plugs into popular IDEs, including Metrowerks' CodeWarrior and Microsoft's Visual Studio, and costs US\$4,995 per developer seat with unlimited prototype development. For deployment, pricing starts at \$10,000 for 100 runtimes. ■

CODEWARRIOR ARMED FOR LINUX DEBUGGING

BY EDWARD J. CORREIA

For developers that need to analyze Linux core files, view kernel source execution line by line, and display memory and data structures, there's now a version of Metrowerks' CodeWarrior that adds kernel-level debugging to the ubiquitous integrated development environment.

Metrowerks is the software tools division of Motorola Inc.

The tools reportedly give developers targeting ARM-based devices the ability to perform stop-mode debugging of the Linux kernel using RDI, ARM's open Remote Debug Interface specification for ARM JTAG hardware. Stop-mode

debugging generally is considered essential for debugging Linux loadable modules.

CodeWarrior Development Studio, ARM Edition for Linux Platform Development 2.0 for Windows includes a GNU compiler, linker and assembler, and costs US\$4,795 per developer seat. ■

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Faster TestStand 3.0 Automates Connections

BY EDWARD J. CORREIA

If the main function of lab engineers is to perform tests, then time spent developing those tests can be thought of as lost productivity. Claiming to reduce such losses by 75 percent is National Instruments Corp., which in mid-August released TestStand 3.0, test management software that it says simplifies construction and deployment of test systems.

According to the company, TestStand now automates the process of interfacing its test systems with other test programs created with its LabView development environment, for building test, measurement and device control applications.

The software also improves interfaces with Microsoft's IDEs, says NI, as well as its own LabWindows/CVI ANSI C environment, simplifying code reuse by



TestStand 3.0 improves integration with Microsoft's IDEs, says NI.

permitting test programs to be called from within those environments.

TestStand 3.0 includes a set of pre-developed user interface controls that can be dropped onto forms to create working test applications within minutes rather than days, the company says. All interface communications with the test engine are created automatically.

Available now for Windows hosts, TestStand 3.0 costs US\$2,995 per developer seat. ■

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Green Hills Super-Sizes Hardware Trace Probe

Multi 4.0 to permit backward crash debugging

BY EDWARD J. CORREIA

With memory costs falling like turn-of-the-century stock prices, why not put more inside debugging tools? Such is the case with the SuperTrace Probe. The new hardware debugging tool from Green Hills Software Inc. includes a gigabyte of memory, which the company claims far surpasses competitive products and gives embedded systems designers greater capacity to store critical trace data from test targets than before. A new debugger also is planned this year.

According to David Kleidermacher, Green Hills' vice president of engineering, most probes of this type have only a few megabytes of memory for capturing trace data, often resulting in wasted time as developers try to guess where a bug is and catch it in



The link between JTAG-equipped trace pod and probe transfers data at 1GB per second.

memory. By contrast, "SuperTrace Probe's huge memory allows developers to capture data first and then examine it to track down problems. This reduces the time it takes to find and fix bugs," he said.

SuperTrace permits developers to control the target processor's trace logic and capture its data while in a running state. Trace data is gathered through the target processor's JTAG interface to the trace pod, where it is transferred to the probe at 1GB per second. Trace data is then sent from the probe to the host computer via USB or Fast

Ethernet and into Green Hills' Multi integrated development environment, where it can be examined as graphical state transition diagrams to isolate specific events.

For developers using the company's Integrity real-time operating system, the software also will translate virtual addresses to physical ones.

Scheduled to begin shipping in October, SuperTrace Probe will be priced at US\$9,900, and will be available initially for ARM 7, 9 and 10 processors with ARM's Embedded Trace Macrocell (ETM) technology, and for PowerPC 405 and 440 processor families.

NEW DEBUGGER: MULTI 4.0

On the heels of the probe's launch, Green Hills in mid-September is set to unveil Multi 4.0, the company's latest

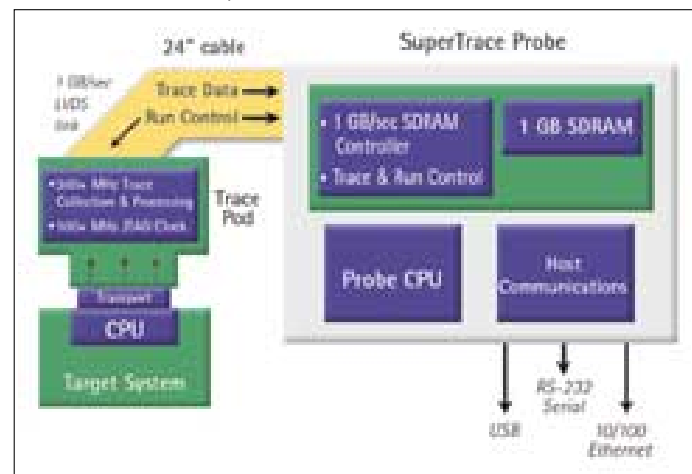
embedded system debugger. Two years in the making, the utility, now reportedly more open and extensible, works with SuperTrace to perform backward debugging of crashed systems and low-level testing of new boards prior to the existence of software.

"With TimeMachine, it is now possible to single-step or run backwards from a crash to see how and why the problem occurred," said Kleidermacher, speaking of Multi's backward debugging capability. Prior to this feature, developers had to restart a crashed system and

step slowly forward through code in an effort to locate the cause of the crash.

Multi 4.0 now includes a graphical interface for managing any sequence of actions, including the building of executables, checking out files or invoking third-party tools. An alternative to batch or make files, the Launcher can be used to automate any repetitive task and can be customized for individual projects.

Scheduled to be generally available by year's end, per-seat pricing for Multi 4.0 will start at \$5,900. ■



Green Hills' SuperTrace Probe is built around a 1GB-per-second link for high-speed capture of target trace data, according to the company.

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It's All About The Relationship

While midtier Web services and app servers get all the publicity, there's still database work to be done

BY LISA MORGAN

In the face of development chic, such as handling complex data types and Web services, enterprise database vendors are continuing to innovate, hoping customers will standardize on their brand.

Internet-based systems and applications are fueling the growth and complexity of database systems, according to Richard Bolesta, brand manager for Computer Associates International Inc.'s Unicenter software.

"Before the Internet, a company might process one order for 1,000 items," said Bolesta. "Now it's not uncommon for companies to process 1,000 orders for a single item and collect detailed information about customers."

Some CA customers have more than 100,000 tables and perhaps one or two indices, he said. And, of course, the relationships between objects need to be defined. The result is higher levels of complexity that are more difficult to manage.

Some vendors say that data warehouses and the enterprise databases are beginning to converge because the function of data management is becoming more centralized.

For example, Jeff Jones, IBM Corp.'s director of strategy for data management, said that because data warehouses yield incredibly clean information stores, customers are beginning to wonder why they can't also do transactions with them. Jones contends that companies should be able to analyze and process data without having to use separate databases.



Oracle's customers typically run multiple major DB brands, according to Shimp.

Robert Shimp, vice president of database marketing at Oracle Corp., agreed. He said developers want to apply business intelligence to raw data, through online analytical processing (OLAP) or Web services, to design business processes. He said transaction databases and data warehouses are merging into a common infrastructure of servers and storage, which is used for both transaction processing and decision support. And even though schemas are totally different, they can reside on the same database.

Intersystems Corp., an application-specific database vendor, has been actively working on the convergence. According to Joe DeSantis, director of software development, the company has been trying to optimize the flow of data in and out of the data warehouse. Intersystems now provides advanced bit-map indexing that allows a relational database to grab information from a data warehouse and run a report. DeSantis said that with bit maps, it's possible to use multiple indices that can be updated in real-time.

Apparently, this is good news for ERP users who want to get up-to-the-minute information about inventory.

TWO BETTER THAN ONE

Customers complain they have too many databases to manage. Vendors have a natural solution: standardize on a single product. Theirs, of course.

Theoretically, one database sounds good. Practically speaking, most enterprises have heterogeneous database environments, either by design, acquisition or happenstance. It's not unusual to simultaneously run some combination of databases from the "big three" (IBM, Oracle and Microsoft), as well as Sybase, CA and a variety of application-specific databases.

Oracle's Shimp said his customers

are typically running three to four major database brands, all of which were selected for good reasons. Oracle, like other database vendors, is encouraging customers to standardize on its brand to improve scalability, security and management.

In the meantime, CA is simplifying integration with other database vendor products. The company also plans to provide a common interface to its 60 database management products, according to CA's Bolesta. Eventually, CA customers will be able to access multiple databases and tools from a single console.

From a licensing point of view, having more than one vendor may be advantageous because diversity can provide leverage in software licensing negotiations. If a company has standardized on a particular enterprise database and the vendor knows it, the enterprise may well find itself in a disadvantaged bargaining position.

Suggested best practice: Choose two vendors instead of one.

TACKLING UNSTRUCTURED DATA

XML has been a point of debate, particularly in regard to relational databases. XML database vendors have attempted

to usurp relational databases in some instances by pointing out that the hierarchical nature of XML does not lend itself to the traditional rows-and-columns format. The translation requires too much overhead, which results in performance hits.

Shimp admitted that hierarchical information is not compatible with relational databases, but said that Oracle has adapted by making XML a native data type. By applying style sheets, Oracle is speeding up translation rates.

Other vendors also are providing native support for XML and nonrelational types of data, in an effort to keep pace with changing customer requirements. For instance, Microsoft Corp. will take another logical step this fall when it releases its next-generation SQL Server, which will provide support for XQuery programmers.

Web-based apps have given rise to more complex DB systems, says CA's Bolesta.

"Databases need to manage all types of data types, but



Enough Features Already!

Customers want simpler, cheaper databases, say analysts

BY LISA MORGAN

Industry analysts have some advice for enterprise database vendors: Stop adding features and functions and start solving business problems at a reasonable price.

"Vendors are totally overshooting the market in terms of features and functions," said Mark Shainman, a senior analyst at Meta Group Inc.

Betsy Burton, an analyst at Gartner Inc., agreed, saying that the changes customers want are much more fundamental than vendors are offering. Customers are looking for robust systems that are scalable, reliable and available.

"Right now, enterprise customers are just trying to survive," she said. "Vendors are trying to drive technology faster than customers will adopt it. Customers just want to keep their systems running."

To prove her point, she cited the adoption of Oracle9i. Apparently, only 40 percent of Oracle customers have migrated to the product after about two years.

Sluggish new product sales aren't unique to Oracle, however. According to Lou Agosta, an analyst with Forrester Research Inc., the adoption rate of new enterprise databases is low due to IT budget cuts.

And, apparently it doesn't hurt to sit on the sidelines for a while. Agosta said that the prices of fully configured systems are declining dramatically. For example, in April 2002, a 2TB database using DB2 on an off-the-shelf Intel x86

server might cost about US\$2.2 million. Today, using a system built on an AMD processor running an open-source operating system and database might cost \$800,000, he said.

Agosta said that 90 percent of the price reduction is attributable to falling hardware prices, while a mere 4 percent is attributable to the use of open-source software. He pointed out that the statistic isn't a criticism of open source, but rather a reflection of the effect Moore's Law has had on hardware.

THE 'RELATIONAL RIVER'

Gartner's Burton said the evolution of relational databases is like a "relational river." Various technologies, such as object-oriented databases and XML databases, have attempted to make relational structures obsolete, but in the end, all they do is influence the direction of relational database evolution.

According to Burton, relational database vendors are using "wire and wax" to handle XML data. And, like it or not, XML does adversely affect the performance of relational database systems.

Regardless of what features a relational database may have now or in the future, enterprise customers should select a database product based on the problems they are trying to solve. From

an applications perspective, it becomes more apparent whether a relational, flat file, object-oriented, XML or combination of databases makes sense.

"More than ever, applications are driving database selection," said Burton. "You should not be adopting a database per se; you should be asking which database is

right for your application."

Forrester's Agosta believes that relational databases won't be replaced by anything else soon. Relational databases will remain the dominant design because vendors will continue to provide extensions to new technologies.

New technologies and competitive pressures are causing vendors to continue to innovate, which results in more features and functions, only a fraction of which customers use.

Meta's Shainman said that customers are paying for features and functions they never use, which is why some organizations are eyeing MySQL. What customers really want are simple, cheap, and stable products.

Simpler pricing structures and licensing also would help. Shainman said customers shouldn't have to spend weeks or months in vendor negotiations, only to end up with a 100-page licensing agreement. ■



Prices of fully configured DB systems have been falling, notes Forrester's Agosta.

you have to be able to do more than just store it," said Thomas Rizzo, SQL Server group product manager at Microsoft.

Oracle's next step, slated for 2004, will be a move to grid computing. The idea is to consolidate and virtualize a large pool of utility computing resources on demand. The purported benefit to customers will be extreme flexibility and the ability to dynamically allocate resources.

"Decision support is becoming meat and potatoes," said Shimp. "Customers want more business intelligence functions and a better means of managing content such as word processing documents and e-mail."

In some cases, keeping track of unstructured content may not be optional. Due to increased regulation, businesses may have to preserve e-mail as evidence, which requires a database. Apparently, increased regulation is creating a sales opportunity for Oracle, as is information security.

Shimp pointed out that most data is not stored in an enterprise database; it's distributed on laptops, which are often lost. As a result, some companies are beginning to view information not only as an asset but also as an invento-

ry item that must be kept secure. They are looking to database products as a means of centralizing and managing the data.

BETTER TOOLS REQUIRED

Microsoft's Rizzo said that the tools and technology relational database vendors have provided to date are not what developers need or want. What developers want are tools that allow C# and Visual Basic programmers to increase their productivity using the same books, object libraries and tools they are accustomed to using.

Even Microsoft developers don't want to be locked into Microsoft-only tools. That's why Microsoft has expanded support to include multiple APIs and third-party tools such as Borland's JBuilder.

"Stored data has no value if you can't access and manipulate it," said Rizzo. "Customers want business intelligence capabilities, but the tools have to evolve because [analytics] are entering the mainstream."

Oracle's Shimp agreed that tools still need refinement, even though management and monitoring tools have come a long way. Java tools are ready for prime

time, he said, but Web services tools are not. Right now, developers are having trouble deciding which Web services standards and emerging standards to support.

Although Microsoft and Oracle think database tools generally need to improve, other vendors don't necessarily agree. Then again, not all vendors seem to be focusing specifically on the needs of developers. Some are placing heavier emphasis on database administrators, given the nature of the product.

LOWERING COSTS

Enterprise database vendors acknowledge that customers want to lower costs, but of course they're not referring to software licensing fees—they're talking about hardware.

Some database customers are beginning to replace traditional large-scale computers with clusters of small servers because the processing power is cheaper.

Cost cutting doesn't stop at hardware, much to vendors' dismay. Customers also want to slash software costs.

In doing so, they may be missing the bigger picture, according to Shimp. Customers postponing software pur-

chases may be missing out on opportunities for better return on investment by investing in software and infrastructure products. By consolidating systems, they could realize greater value in the long run.

THE AUTONOMIC FUTURE

More automation is on the horizon in the form of "autonomic computing," according to CA, IBM, Microsoft and Oracle. Because databases are becoming so large and complex, it is impractical for humans to continue managing them in traditional ways. Autonomic computing provides self-managing functions that are implemented automatically and at a much faster rate than can be achieved manually.

"We can do better tuning [automatically] in [Oracle]9i than a human can," said Shimp. "Today's systems are so large and complex, you'd need an army of rocket scientists to get incremental improvements."

CA's view is a little less dramatic. Bolesta said if an IBM DB2 user wants to change a buffer pool, he has to stop running DB2 and restart it. By contrast, Unicenter dynamically changes the

► continued on page 24

RELATIONSHIP

◀ continued from page 23

buffer pool without interrupting system operations.

"We are also providing tools that allow for dynamic or event-driven changes," said Bolesta. "Some of these ideas are old, such as the automatic manage-

ment of buffer pools, but the autonomic computing [model] will help."

Proponents of autonomic computing say that developers and database administrators should not be bothered with rote management tasks, such as memory tuning and disk allocation. Professional time is

better spent enabling business processes.

Tom Traubitz, senior marketing manager of Sybase Adaptive Server Enterprise, said it is better to hire a developer with line-of-business expertise than, say, a Java developer who doesn't understand the business he's been hired to support.

Even though autonomic computing may save developers and database managers from boring and tedious tasks, vendors still sporting bruises from Windows-to-Java and Windows-to-.NET migrations don't necessarily think developers should be hired for their business expertise—at least not yet.

For now, if you need a Java programmer, they say, that's what you should hire.

MORE OPEN SOURCE

Linux is continuing to gain traction in enterprise shops; and among the big vendors in the database space, IBM is leading the charge with its Linux version of DB2. Oracle's Shimp said his customers have been moving Linux into production sites over the past year or so as the technology has matured. Linux provides a low-cost, high-quality infrastructure for databases, he said.

The burning question is whether the growth of Linux will make way for open-source databases like MySQL. Mårten Mickos, CEO of



MySQL AB, said he thinks it will. Unlike Oracle, IBM, Microsoft and even Sybase Inc., MySQL doesn't have a long history of selling relational database products. Being newer, MySQL is in a better position to support new applications, he claimed.

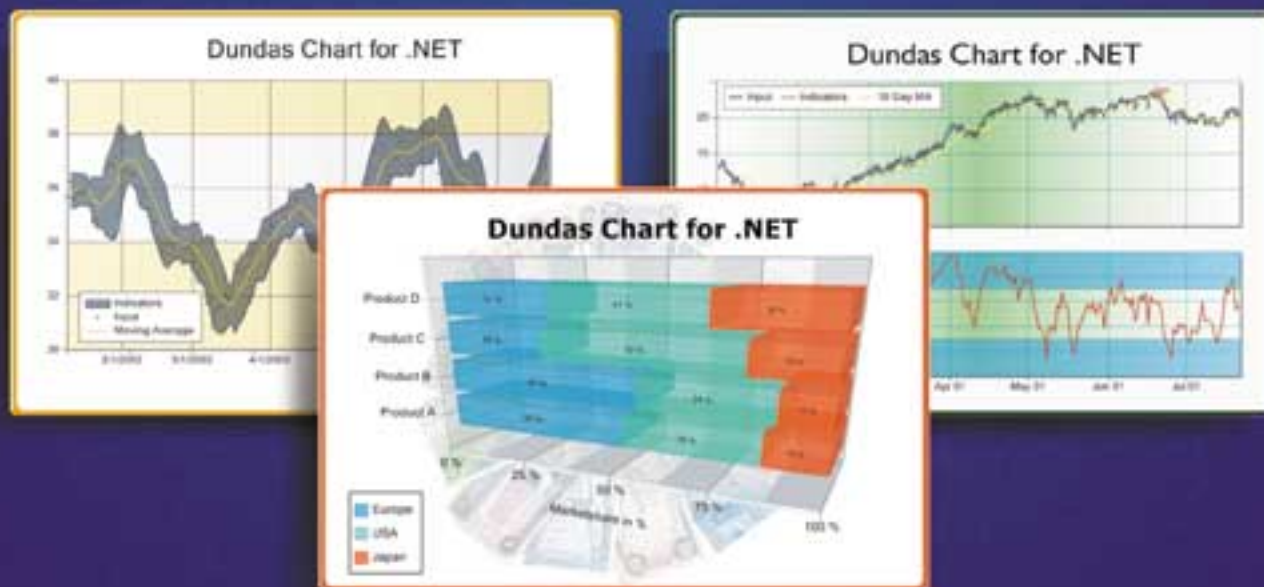
Mickos agreed with many industry analysts (see "Enough Features Already!" page 23), who pointed out that the big database vendors have added more features than customers actually want. The result is an overly massive and complex product when customers are using only a small percentage of features and functions.

Given the broad adoption of Web and Web-enabled applications, customers need highly reliable databases that can quickly load and render Web pages. Google uses MySQL, for example.

Perhaps more compelling is the relationship forged in May between MySQL and SAP AG, which could make MySQL an even stronger enterprise contender. MySQL will manage the open-source SAP DB source code, and SAP will provide some development resources.

According to a recent Brief Case report by Forrester Research Inc., analysts Ted Schadler and Ryan Hudson, the relationship will legitimize MySQL in the enterprise; however, MySQL will not replace the closed-source databases anytime soon. ■

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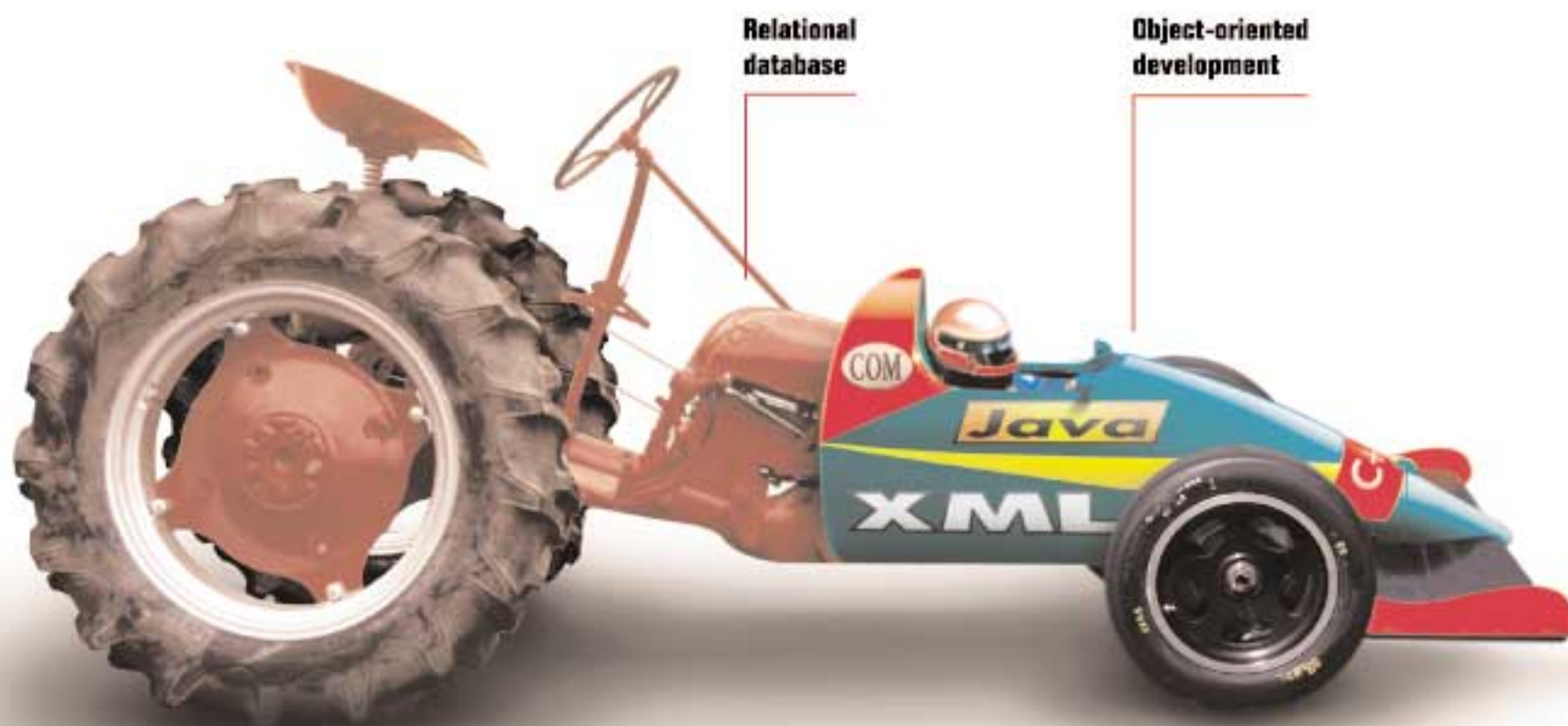
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EDITORIALS

Don't Forget the Back Tier

The concept of a multitiered application design is well established by software developers and architects. However, although all three tiers are important, many of today's vendors and tool sets focus almost entirely on the middle tier, the business-logic layer.

From Web services to distributed application platforms such as J2EE and .NET, the middle tier, as implemented in J2EE app servers and the .NET Framework, has become home to the most exciting new technologies and the greatest emphasis in software development tools.

The cost has been neglect of the back tier. Despite an initial flurry several years ago around the emergence of pure XML data stores, it seems that innovation around core enterprise database technologies—specifically top-flight relational databases—has taken a back seat to advancing application servers.

Indeed, one generally hears more from IBM, Microsoft and Oracle about their app servers and IDEs than about their foundational database technologies and products. Conferences and books strive more to teach XML-based Web services, JavaServer Faces, application orchestration and wireless front ends than to improve data storage and access methods.

The pendulum may be swinging back. The long-anticipated Yukon update to Microsoft's SQL Server 2000, went into closed beta in July. The forthcoming Oracle 10g will distribute the back end across enterprise grids. IBM is looking toward autonomic databases to ease the transition toward service-oriented architectures.

The challenge will be to add new functionality without adversely affecting the price, performance and complexity. Database development and administration has long been one of the more mysterious aspects of IT; for many enterprise developers, the RDBMS is a black box accessible only through SQL statements. Perhaps that's why programmers have flocked to presentational and business-logic tools—because they can understand them. Let that be a lesson for the database crowd as they prepare to unleash their next set of innovations.

Blatant Favoritism

The relationship among Apache, JBoss and Sun resembles nothing more than a soap-opera love triangle.

When last we left our heroes, JBoss was trying to certify its well-regarded open-source J2EE app server, but Sun wouldn't certify it or help the company get it certified. Meanwhile, last year, Sun decided to embrace the open-source community, so it rewrote parts of the Java Community Process rules specifically to suit the Apache Software Foundation's needs. Not only that, but Sun gave Apache a seat on its executive committee for J2SE/J2EE, and set up an open-source "scholarship fund" that Apache would help administer.

In the latest chapter, Sun and Apache are joining forces to create an open-source J2EE app server, Geronimo, with major contributions from a group that tried to fork the JBoss project.

It's a shame that Sun so blatantly favors Apache as its chosen vehicle for open-source Java development (along with its own NetBeans project, of course). Guess which project will be J2EE-certified first? ■

LETTERS TO THE EDITOR

SCO 'DESPERATE'

This article ["SCO Wants Linux Users to Pay," Aug. 15, page 1, or at www.sdtimes.com/news/084/story3.htm] is very frightening. I believe that SCO is doing this simply out of desperation, and perhaps they are correct and somehow some portion of source code was taken from Unix and used in Linux.

But cannot someone from the open-source community sign the nondisclosure, look at the offending source, and then just go back home and fix it? I mean, this person wouldn't necessarily be disclosing anything. Once fixed, everyone updates their kernel (or whatever needs to be updated) and then there would be no more concern.

Thomas J. Clancy

COVERAGE 'LAUGHABLE'

Whose butt are you kissing? [SCO SVP of marketing Jeff Hunsaker's? This guy has been dumping SCOX stock like nobody else, and the Vultus deal is so unimportant as to be laughable that you even reported it ["SCO Group Puts on a Web Face," Aug. 15, page 17, or at www.sdtimes.com/news/084/story15.htm].

Shall I stop reading your articles because they are so clearly biased and so lacking in important information—you know, like information about The SCO Group's upcoming demise? Why would I invest in a product from a company that will cease to exist in the near future?

Adam Ludwick

'SIXTY-SIXTY' MORE LIKELY

In his Guest View in the Aug. 15 issue ["Love Bugs?" page 26, or at www.sdtimes.com/opinions/guestview_084.htm], Adam Kolawa couldn't have said it any better: Where there's one bug, there's probably a whole family of nephews and nieces hiding in the cracks.

The industry standard of 20-80 development when it comes to bug-fixing sounds accurate for the initial phase of software development. Over the lifetime of a product, Bob Glass' Sixty-Sixty rule—as detailed in his book "Facts and Fallacies of Software Engineering"—is more likely accurate: Sixty percent of resources are spent on maintenance, and sixty percent of those are spent on enhancements.

The questionable point is

whether better bug identification methods would raise the productivity of a typical developer by 500 percent. [Vilfredo] Pareto would have told you that 80 percent of the bugs are caused by 20 percent of the programmers. What we need is a better way to identify this 20 percent and remove them from the development phase. Now that really would improve the industry average.

Celia Redmore

www.sysprog.net

BREATH OF FRESH AIR

Excellent! Excellent! Excellent! In your interview with Linus Torvalds ["SCO Suit: No Big Deal for Linux Adoption," Aug. 15, page 16, or at www.sdtimes.com/news/084/story14.htm], he brings us all a breath of pure, fresh air in this time of the SCO stink. Linus comes across to me as the most likable man in the U.S. today, and I've never even met him.

He has given the world something so powerful that his name will be known for centuries to come—in the same category with Euclid, Galileo, Gutenberg and Benjamin Franklin.

Edmond Jane

Bay Center, Washington

MISTAKEN ABOUT XML

In his column "Growing XML's Appeal" [Aug. 15, page 31, or at www.sdtimes.com/cols/middlewatch_084.htm], Andrew Binstock is in factual error regarding XML being pure ASCII. To the contrary, it is one of the few data representations that fully support Unicode. UTF-8 is not ASCII....

And, in Larry O'Brien's column ["J# in a C# World" Aug. 15, page 29, or at www.sdtimes.com/cols/winwatch_084.htm], one of his most salient points was with regard to standard libraries. The biggest difficulty in porting a Java program to .NET has been in migrating use of standard libraries (and not necessarily esoteric ones).

Stuart Swerdloff

DON'T FORGET VOICE XML

Your article ["The Word on Speech Development," Aug. 1, page 25, or at www.sdtimes.com/news/083/emb1.htm] is way too slanted in favor of Microsoft.

There is an existing open standard for a speech-enabled Internet called VoiceXML. It

was first published in March 2000 by the VoiceXML Forum (650 companies), and VoiceXML 2.0 was published by the W3C in January 2003.

VoiceXML has a wide uptake in the industry and is actually a substantially superior standard technically: Simple tasks that take, say, 60 lines of SALT to describe take 20 lines of VoiceXML 2.0. The W3C standards body is now actively working on VoiceXML 2.1 and 3.0, but not SALT.

There is a second standards effort at the W3C for multimodality, which seeks to combine speech enablement with the normal visual Web, but this is still early. We are looking at VoiceXML and SALT for inspiration, but to me it seems more likely that the result will be VoiceXML-based, not SALT-based. It's still very early.

In July Hewlett-Packard bought Sweden's PipeBeach for its VoiceXML knowledge. In the past couple of weeks, Nortel, Comverse (a SALT Forum founder, no less), SandCherry, Locus Dialog, VoxPilot, TellMe and VoiceGenie all had significant announcements surrounding VoiceXML.

TellMe now hosts over 300 paying enterprise applications for various Fortune 500 companies, all based on VoiceXML. There are about 10 books already published on how to develop using VoiceXML, and VoiceXML pretty much dominates the mind share.

SALT is a Microsoft attempt to embrace and extend W3C standards for their own purposes. They will meet significant resistance from the rest of the industry as they try to enter this market.

The announced Microsoft Speech Server will have difficulties since it does not support VoiceXML, and since it only will run on Windows.

Jim Ferrans

Motorola Labs

WHAT DO YOU THINK?

SD Times welcomes feedback. Letters should include the writer's name, company affiliation and contact information. Letters become the property of BZ Media and may be edited for space and style.

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Borland's C# Builder Enterprise Edition 1.0



The company that invented the IDE falls short with first major non-Microsoft full-featured environment for .NET

BY LARRY O'BRIEN

Borland Software Corp.'s C# Builder Enterprise Edition is a sharp disappointment and is unlikely to win heads-up competition with Microsoft's Visual Studio .NET 2003 in any buying scenario.

It does not perform as well as VS.NET at the fundamental task of editing code and provides few innovative features. Since the back-end compiler technology used is from Microsoft and there is no facility for plugging in Mono (an open-source C# compiler), the product does not provide an alternative to Redmond's compilation technology, one of Borland's traditional appeals.

And while C# Builder does integrate with Borland's recently acquired products, notably Together's UML technology and Caliber's requirements management database, the integration would seem to provide little productivity benefit. However, the product does provide access to other initiatives, such as Borland's own Janeva software (which lets .NET applications access J2EE and CORBA server-side components) and superior access to non-Microsoft databases such as Oracle, DB2 and Borland's InterBase.

Borland has a long legacy: With Turbo Pascal, the company invented the integrated development environment 20 years ago last month. Its products always have been able to go head-to-head with the best in a particular market, and usually Borland won. JBuilder is, rightly, the most popular full-featured Java IDE. Coming from Borland, C# Builder deserves to be held to the highest standards. One does not expect from Borland the merely adequate; one expects Borland to raise the bar in terms of quality.

Although it is painful to pan the first major non-Microsoft full-featured IDE for .NET, Borland has worked too long to achieve that standard of judgment to be given a free ride.

I looked at the Enterprise Edition of C# Builder: the version with the second-greatest feature set, and the one most appropriate for the typical corporate developer. The Architect Edition's most notable additional feature is the ability to create and edit several types of UML diagrams; the Enterprise (and Professional) editions' Together facilities are limited to an automatically generated class diagram.

The product comes on two CD-ROMs (a third disc of patches was included in my shipment). There also are more discs with developer editions of Microsoft SQL Server and IBM DB2. Other products in the box are Crystal Reports, WiseOwl's Demeanor obfuscator, InstallShield Express and ComponentOne Studio Enterprise. A third database option is InterBase 7; one of Borland's

more interesting claims is that its database drivers for ADO.NET are faster than those from Microsoft (except Microsoft's SQL Server drivers).

I chose not to install the Oracle database driver, a seemingly trivial decision that resulted in an exception being thrown every time C# Builder started up (although loading continues after two dialog boxes are dismissed), an example of the general sloppiness of the install procedure, which took upward of two hours, with dead ends and a frustrating registration wizard that insisted that I already had an account with Borland but didn't have a "retrieve password" option.

The program opens to a portal-style Web page. I was happy to see that a C# tutorial was featured, but the content is poorly edited and almost amusingly Java-centric. Part of Lesson 17 on Exceptions reads: "The exception handling in C#, and Java is quite similar. However, C# follows C++ in allowing the author to ignore more of the exceptions that might be thrown (an exception which is thrown but not caught will halt the program and might display a dialogue box)."

Aside from the editing errors, the sentence misrepresents C#. It would be more accurate to say that in C# all exceptions act like Java's runtime exceptions.

C# BUILDER'S HIGH NOTE

The single biggest positive surprise in C# Builder is in the "New Project" dialog, which includes a gamut of options for creating applications in Visual Basic .NET. While several of the visual tools don't work with VB.NET, it's possible to edit, compile, run and debug VB.NET applications from within C# Builder. Now if Borland could steal *that* audience from Microsoft, I'd be impressed.

Assuming that a C# Builder developer chooses to build a C# WinForms application instead, the next step is to use Borland's visual designer to create a user interface. There are no real surprises here, although again the decision not to install the Oracle driver bit me when exceptions were thrown as I tried to set the connection string of a Borland Data Provider BdpConnection object. As far as I could see, every standard WinForms component was available, as well as the others, such as the ComponentOne products.

The editor is the lifeblood of an IDE, and C# Builder is a disappointment. The editor flickers during typing on a 2.6GHz workstation with a Radeon 9200 graphics accelerator. That's just ridiculous.

There's nothing in terms of code navigation that stands out as innovative. Code outlining and bookmarks are supported, but these are now expected features. Code completion works, although compared with VS.NET's equivalent functionality,

Borland's implementation struck me as a little clunky. The help system is sloppy; when searching for "macros" to determine if the editor supports user-programmability (it doesn't), I found myself reading about MFC Message Maps in a section called "Visual C++ Concepts." The helpfile index is cluttered with similar irrelevancies.

Inexplicably, the editor doesn't provide refactoring support, such as the company provides in JBuilder. Neither does C# Builder support nAnt or nUnit, two popular open-source projects for build management and unit testing. Those projects were derived from popular Java tools, and supporting them would appear to be a no-brainer.

C# Builder integrates with several tools that one would expect to find in a shop using Borland tools. One of the most interesting to me was CaliberRM, Borland's requirements management tool, but what is available is only a client for an existing Caliber database, not a "light" version of the application itself appropriate for small projects.

Similarly, while C# Builder supports any SCC-compliant source-control software, I was somewhat disappointed not to have out-of-the-box CVS capability. Finally, I just shook my head when I realized that not only is Mono not installed, but apparently there's no way to switch out Microsoft's back-end compiler at all.

Presumably, the target audience for C# Builder consists of two rings: anyone doing C# development in a professional setting, and an inner core of programmers with a predilection for Borland from the get-go.

The inner core would include mixed-environment shops and those ambivalent toward Microsoft, but as detailed previously, C# Builder doesn't integrate the most obviously appealing tools for that inner core (Mono, CVS, nUnit and nAnt).

As for the broader audience that would consider C# Builder as a productivity boost over Visual Studio .NET, Borland simply falls short even though the company has the most obvious, and greatly desired, productivity boost available in the form of the refactoring technology already shipping in JBuilder.

C# Builder is the major first full-featured IDE for .NET written by a company other than Microsoft. A strong and competitive .NET tool market is vital if that platform is to thrive and advance. In the past, Borland has proven its ability to humble Microsoft, and I have little doubt that one day it will do it again with a .NET product that bests Visual Studio .NET.

However, C# Builder 1.0 simply falls short. ■

Larry O'Brien, a regular columnist for SD Times, is an independent technology consultant and analyst, and the founding editor of Software Development Magazine.

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NOVELL'S NOVEL LINUX PLAN

In the last column, I expressed my uncertainty about Sun's desktop Linux play, code-named "Mad Hatter," which should ship, according to the company's spokesperson, sometime this year. The product line was, in my view, the repackaging of previous Sun products to be sold by a company with an uncertain commitment to Linux.

Compare Sun's approach with the one announced by Novell at LinuxWorld West in San Francisco in August. Novell—a company known equally for great enterprise products and for its seven years of strategic drift—announced it had purchased Boston-based Ximian. The latter company develops GNOME and is finishing up the open-source version of Microsoft's .NET, named Mono. Ximian also developed several desktop tools I'll touch on shortly.

The purchase of Ximian is part of Novell's strategy to retool itself into a Linux company. Through various announcements, the Orem, Utah-based deposed king of PC networking has stated that all its tools will eventually run on Linux.

This gives Novell an appealing line of enterprise and server software that is unique in Linux, including robust directory, file, print and messaging services. This software does not need to be released as open source, meaning it is a

truly unique differentiator.

Through the Ximian acquisition, Novell also adds a robust desktop suite that includes an Outlook-like mail/calendar/contact manager bundle called Ximian Evolution, instant messaging and, well, Sun's Star Office suite built on the Open Office open-source project.

Novell plans to add features from its Groupwise collaboration software to Evolution. The desktop also includes connectors to Microsoft's Exchange, so that Linux-based PCs should be able to interoperate seamlessly with Outlook running on Windows-based PCs on the corporate network, including exchanging vCards and iCal appointments.

If the Mono project is successful, it means that future releases of Microsoft software should run just as well on Linux.

To this suite of tools, Novell intends to add its own Linux distribution. I like this idea. Novell is uniquely positioned to develop a killer version of Linux that other distributions cannot touch: It has wide experience in serving enterprise customers—it knows what they need and how to provide it. In addition, with control over the direction of Ximian's product suites, which also includes the GNOME environment, it can move prod-

uct direction in the ways that suit it best.

On all counts, Red Hat—Novell's presumed competitor—has no real response, because it adds little unique value to the products it sells other than the maintenance and update of the operating-system code itself, and improvement to installation tools and other utilities. Novell, of course, has the robust desktop now, and its own NetWare tools. That makes it hard for competitors to offer matching or even similar offerings.

Novell has an installed base of around 90 million seats on 4 million servers, so it has a story for them when it comes to upgrades and migration from their current NetWare systems. So unlike Sun, which has no reason to migrate anyone away from Solaris to Linux, Novell has a loyal and waiting group of customers.

In addition, enterprise Linux vendors, such as IBM, might view the Novell Linux software as much more attractive for their customers. If not the whole distribution, then certainly pieces of it.

Novell's moves underscore an interesting dynamic in the Linux market: It is difficult to distinguish yourself. Red Hat holds a commanding position in the U.S., and SuSE holds a strong position in European installations. Everyone else is sort of on the sidelines, limping along, forced to watch the success of their competitors who offer similar products.

To break into the market for Linux distributions, then, a company really needs a compelling differentiator. And in the case of Novell, that differentiator is closed-source products and control over the direction of a variety of important open-source initiatives. Its experience in enterprises and the legions of technology and IT consultants from its 2001 acquisition of Cambridge Technology Partners make Novell's position more compelling still.

Novell's big challenge, of course, is whether it can market itself properly, now that it has formulated a credible strategy.

Chris Stone, who heads the marketing functions at the firm, is a bright light. Stone was the founder of Object Management Group and the force behind CORBA. He started off at Data General and did a previous stint at Novell. It's hard to gauge his effectiveness in marketing hitherto, because Novell had no story to tell until now. None.

This is a concern, because it might suggest that the company could easily derail and become lost again, as we've seen so many, many times. However, if Novell executes well on its Linux products (a safe bet) and Stone does good work in promoting this new Novell, I see considerable reason for optimism—both for Novell and for the larger Linux community. ■

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

INTEGRATION WATCH



ANDREW BINSTOCK

Leveraging Technology



Bluetooth Application Programming with the Java APIs
by C. Bala Kumar, Paul J. Kline, and Timothy J. Thompson



Java Web Services Architecture
by James McGovern, Sameer Tyagi, Michael Stevens, and Sunit Mathew



XML for Data Architects
Designing for Reuse and Integration
by James Bean



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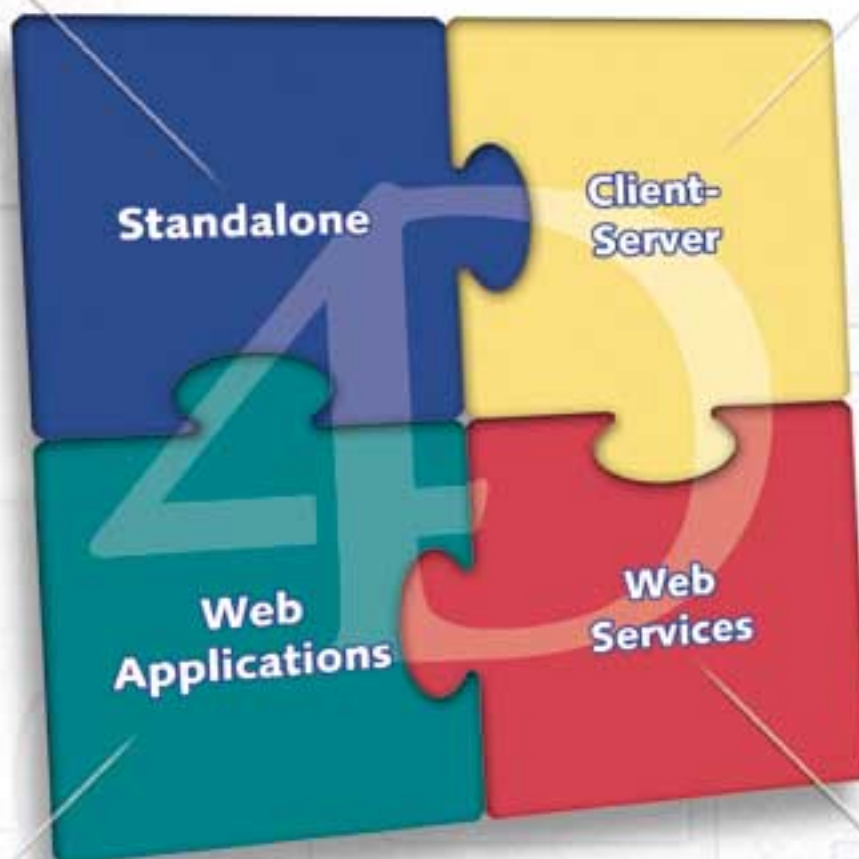
WHEN THE
SOLUTION
MATTERS

fig 1: Standalone

4th Dimension 2003 provides an environment for Rapid Application Development with an integrated database. Standalone applications can quickly and easily be created for both Windows and Macintosh platforms (including Mac OS X).

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fig 2: Client-Server



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fig 3: complete development solution

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WHAT'S THE MEANING OF THIS?

Allo. Bonjour. Hola. Guten tag. Shalom.

Many of you kind readers, no matter where in the world you are, were able to understand my simple greeting. Yet the greeting is not exactly the same in all the languages I used. *Bonjour* and *guten tag* mean "good day," while *shalom*, *allo* and *hola* mean "hello." Semantically and logically, however, we have come to know them as basically the same.

Computer scientists have been working for decades to get machines to understand natural languages, not merely programming languages that don't allow users to express such things as business rules in a more declarative, high-level way. This is part of the great disconnect between business people and techies; the business people speak English, and the techies have to translate that English into something a computer can understand—often a low-level, step-by-step way to complete a task. The margin for error is great; remember the childhood game called Telephone? By the time the message got to the last person, it changed dramatically from the original.

Some tools for creating business rules already allow for the use of English by providing vocabularies and grammars that the system can recognize. The problem with these is that in a practical world, rules writers will step outside of these definitions pretty quickly, and end up spending almost as much time updating the dictionary and grammar as they do writing rules.

Dr. Adrian Walker at Reengineering LLC, a start-up employing two full-time and two part-time employees in Bristol, Conn., is working to remove some of these hurdles. By continuing down a path

that was first realized more than 15 years ago with the Internet Business Logic name he copyrighted in 1981, Walker has created a system whereby plain English can be used to invoke data from tables to use in applications as required. Where relational databases were an improvement over navigational databases in the way they represent data, so too, Walker said, is his Internet Business Logic system an improvement over programming languages in the way business rules are represented.

"You can think of [IBL] as natural language understanding lite," Walker said. "IBL spends only 10 percent of its time on language understanding, with 90 percent spent on inferencing, automatic generation of SQL and explanations." Other efforts at natural language understanding, he claimed, advocate the same approach but have yet to produce a huge payoff in the commercial software world.

Words and sentences can be strung together in many different ways, with many different interpretations of what those words mean. "Check the users' numbers to see if they match" is a sentence that could be requiring validation of all incoming ID numbers against a database of allowable numbers for entry into a banking system, or it could be asking a system to make sure all the numbers input match each other.

Walker claims the IBL gets past all that by assuming that if the sentence has meaning to the person who wrote it, then it is also meaningful to the system, based on a theory of declarative knowledge—knowing "that" as opposed to knowing "how."

"If you assign meanings to [data] tables and write rules over those tables,

the system will pick up the meanings of the rules," Walker said. "It's strange, but it works."

IBL is hosted on Walker's Web site (www.reengineeringllc.com) and is accessed through a browser. In the IBL interface, rules can be written and then run. The rules appear as a menu of questions, with tables shown that are related to those sentences.

Walker said that if something looks wrong, IBL will show a hypertext English explanation; the rules writer doesn't have to call a programmer to find out what went wrong. Transactions over databases can be required to include explanations before the transaction is committed, he added. Further, the order of the rules is not an issue; the system will follow the logical behavior regardless of where or when the rules appear, he claimed.

"Where IBL stands at the moment is it's a one-size-fits-all GUI. The output is tables," Walker said. "They can be saved, or run into Excel or graphics packages."

IBL also can be used with outside databases such as Oracle, and it will automatically generate the SQL statements and transactions that have been specified in the rules, he added.

"If you think of all the work that's gone into natural language understanding," Walker said, "there are very few commercial tools that take advantage of it."

IBM, Computer Associates and other companies are doing work with natural language understanding, artificial intelligence and other technologies to make computers more self-reliant and self-aware. Some of that technology already has been built into some of their offerings.

From that, you can deduce, infer or glean that more commercial products are not far behind. ■

David Rubinstein is executive editor of SD Times.

INDUSTRY WATCH



DAVID RUBINSTEIN

BUSINESS BRIEFS

TIBCO Software Inc. has filed a trademark infringement suit against **Apple Computer Inc.**, seeking to stop Apple's use of the name *Rendezvous* for local-area networking software. TIBCO claims it has used its *Rendezvous* trademark since 1994, and that Apple was aware of TIBCO's trademark when it chose the name for its software in 2002. . . . **The SCO Group** reported net third-quarter income of US\$3.1 million for the period ended July 31, a significant increase from the net loss of \$4.5 million posted in the same quarter a year earlier. Revenue for the quarter was \$20.1 million, compared with \$15.4 million a year ago. SCOSource, the company's division for licensing Unix, accounted for \$7.3 million in revenue in the quarter. CEO Darl McBride said the company's fourth-quarter revenue is expected to be in the range of \$22 million to \$25 million. . . . **Tarantella Inc.** missed its deadline for filing financial documents, canceling an investor conference call scheduled for Aug. 19 and falling out of compliance with SEC regulations regarding the filing of current and quarterly financial statements. It was unclear as of press time as to what action, if any, the SEC might take against Tarantella. . . . **BEA Systems Inc.** reported fiscal second-quarter revenue of US\$245 million, an increase of 8 percent from the \$225.9 million from the same quarter ended July 31 a year earlier. The company reported GAAP operating income of \$36.8 million, up, it said, 35 percent from 2002's second quarter. . . . **Serena Software Inc.** reported revenue of US\$24.9 million for its fiscal 2004 second quarter ended July 31, and net income of \$6.9 million. This is an 8 percent improvement upon revenue of a year ago, the company reported, and a 7 percent increase in income. . . . **Vector Capital Group** has closed its acquisition of **Corel Corp.** for US\$1.05 per share. Ottawa-based Corel's shares stopped trading on the Nasdaq exchange on Aug. 28 and on the Toronto Stock Exchange on Sept. 2. ■

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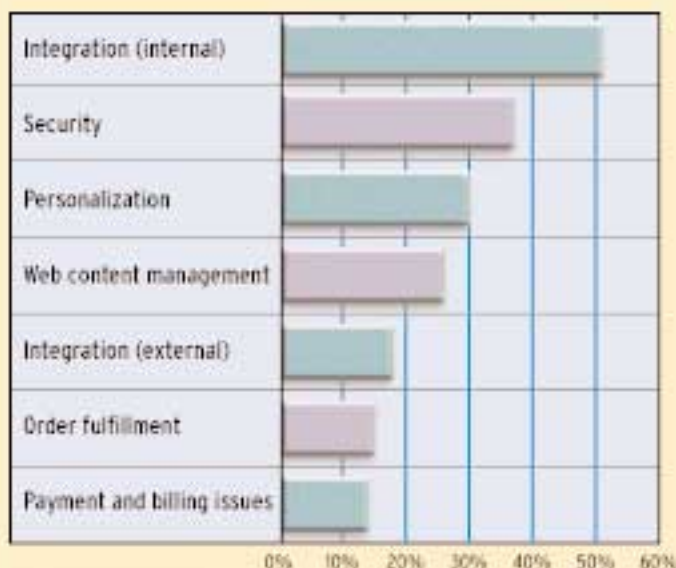
Symposium/ITxpo 2003 Oct. 19-24
Orlando, Fla.
GARTNER INC.
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Most Common Function for Web Services Projects

DATA WATCH



Web services are the new middleware in town—but merely being "new" isn't sufficient reason to implement a new technology. Yet, many companies are embracing Web services. Why?

A Gartner Dataquest study asked how North American enterprises use Web services standards in software development and integration projects. The survey focused on enterprises developing Web services in-house or by contracting with consultants, and sought to determine respondents' wants and needs between now and 2005. For this survey, Gartner defined Web services as "a custom end-to-end application that interoperates with other commercial and custom software through a family of XML interfaces (like SOAP, UDDI and WSDL) to perform useful business functions."

Nearly half of the survey's respondents indicated that the U.S. economic slowdown has caused them to reduce spending on Web services development, but not so much as to discontinue the project. Nearly one-third of respondents indicated that the U.S. economic slowdown has not affected their organization's budgeted investment in developing Web services applications.

Source: 2003/2004 Web Services Development Survey, North America, Gartner Inc.

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